

THE DOROTHEA AND TRENT AMONG THE ICEBERGS.

THE MARVELOUS
Wonders of the Polar World.

BEING A

COMPLETE AND AUTHENTIC HISTORY

OF

VOYAGES AND DISCOVERIES IN THE POLAR REGIONS,

INCLUDING THE EXPEDITIONS OF SIR JOHN FRANKLIN, LIEUT. DEHAVEN, DR. KANE, DR. HAYES, ADMIRAL ROGER, CAPT. HALL; LIEUT. SCHWATKA'S THREE-THOUSAND-MILE SLEDGE JOURNEY; THE CRUISE AND LOSS OF THE JEANNETTE, THE FATE OF DELONG, AND RESCUE OF DANENHOWER AND MELVILLE; CLOSING WITH A FULL HISTORY OF THE GREELY EXPEDITION, BEING A RECORD OF UNPARALLELED ADVENTURE, SUFFERING AND DEATH.

FROM THE NARRATIVES OF

LIEUT. GREELY, COMMANDER SCHLEY, LIEUT. DANENHOWER,

AND THE OTHER GALLANT HEROES WHO FACED DEATH THAT THE WORLD MIGHT KNOW THE MYSTERIES OF THE POLAR REGIONS.

TO WHICH IS ADDED A

FULL ACCOUNT OF THAT APPALLING HORROR, CANNIBALISM, AS TAKEN FROM THE DIARIES OF THE MEMBERS OF THE GREELY EXPEDITION.

"Men under such awful circumstances lose all control over their better natures, and become even cannibals."

THE WHOLE CAREFULLY EDITED BY

HERMAN DIECK, A. M.,

THE WELL-KNOWN AUTHOR.

PROFUSELY ILLUSTRATED WITH SCENES AND INCIDENTS IN THE POLAR REGIONS AND PORTRAITS OF ARCTIC HEROES FROM ORIGINAL SKETCHES AND PHOTOGRAPHS.

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PREFACE.

NEARLY three thousand years before the birth of Christ the Tyrians and Phœnicians left their homes and firesides to explore new realms, and to obtain from the then unknown land of Spain the means of augmented wealth and luxury. From that period down through succeeding ages until the present time, enterprising men have found a congenial field of labor and adventure in unknown regions in search of riches, celebrity and conquest. This spirit has given birth to many great states and empires. It was this spirit which made England pass successively under the sway of Gallic, Roman, Saxon, Danish and Norman conquerors. More especially still was it this restless spirit of adventure which created the greatness of the maritime cities of Genoa and Venice, as well as that of the kingdoms of Portugal and Spain.

After the discovery of the American continent and after the thorough exploration of the Atlantic and Pacific Oceans, there was a field left which demanded greater heroism, greater endurance and was fraught with greater perils than any other part of the globe. This region lay far up toward the North Pole. It was the land of everlasting snow-fields, of stupendous icebergs, of terrible storms, the land of the midnight sun. To navigate and explore these realms, men of extreme daring, of sublime heroism, and of great perseverance were indispensable. These men possessed one great element of distinguishing greatness, of which the explorers of more congenial and inviting climates were destitute. Their investigations were made without the prospect of rich reward and chiefly for the advancement of science. The discovery of a northwestern passage was kept in view, but other less

mercenary and more philanthropic motives brought about the larger portion of the expeditions, which, especially during the nineteenth century, invaded the cheerless solitudes of that dangerous and repulsive portion of the globe.

The recent terrible experiences of the DeLong and Greely expeditions have awakened intense interest in the region towards which the world still looks, with unsatisfied inquiry. The object of this book is to present, in one volume, an authentic record of all that can interest the general reader in connection with the efforts put forth by Arctic explorers to solve the problems presented in the Polar regions.

Nothing in the whole range of literature can be more entertaining than the accounts of the various expeditions to the frozen North—that in search of a northwest passage under Sir John Franklin, the voyages of Lieut. DeHaven, Dr. Kane and Dr. Hayes, the three expeditions of Charles Francis Hall, the remarkable sledge journey of three thousand miles, by Lieut. Schwatka, U. S. A., the cruise and loss of the *Jeannette*, and the relief expeditions sent out for DeLong, closing with the account of the Greely expedition and the rescue of Lieut. Greely and the survivors of his party—thus covering the whole field of Arctic explorations.

No better example of the influence of lofty motives in the conduct of life can be found than is seen in the case of these brave adventurers and martyrs in the cause of science. The youth of our country will draw many ennobling lessons from the patriotic self-sacrifice of Franklin, Kane, Hayes, Hall, DeLong and Greely, in the perusal of this work. There always will be a great interest among the people in books relating to voyages of discovery, adventure, suffering and death.

The taste of the artist and the skill of the engraver have been brought into requisition to illustrate the information conveyed, thus adding a charm and value to the work that will be readily appreciated by every reader.

THE AUTHOR.

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THE
MARVELLOUS WONDERS
OF THE
POLAR WORLD.

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INTRODUCTORY REMARKS.

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Baffin—Captain Phipps—Captain Cook—Mackenzie—Desbnew—Behring—Sir John
Ross.

If you examine a map of the Arctic regions, showing what was known of the countries around the North Pole in the commencement of the present century, you will find that nearly all within the Arctic Circle was a blank. The Icelanders and Northmen were the first Arctic explorers, but nothing is known of their discoveries except that they had found a land which they called Greenland. In 1497 John and Sebastian Cabot landed in Labrador, and afterward went as far north as $67^{\circ} 30'$ in search of a northwest passage to India. In 1576-78 Martin Frobisher made three voyages, discovering the entrance to Hudson and Frobisher Straits, leading into Hudson Bay.

About the middle of the sixteenth century, several learned men, including Sir Humphrey Gilbert, employed their pens in arguing the practicability of a Northwestern Passage. In his defence of such an attempt he spoke of a friar of Mexico who had actually performed the journey, but who, on telling it to the king of Portugal, had been forbidden to make it known lest it should reach the world. Whatever the facts of this case, some enthusiasm on the subject was the result, and Martin Frobisher spoke of it as *the* one thing "left undone."

But although he also persisted in his advocacy, it took fifteen years of perseverance and constant effort before he could find any one who would give him the assistance he needed. At last, when hope was nearly dead within him, Dudley, Earl of Warwick, came to the rescue, and aided him to fit out two small barques, thirty-five and thirty tons burden respectively. With these small craft, for such a voyage, he left the Thames. As he passed Greenwich Palace, on the 8th of June, 1576, Queen Elizabeth waved her farewell from a window. Briefly, they reached what is be-



NORSE SEA-KING.

lieved to have been the southern part of Greenland and Labrador, where they could not land because of the icy field surrounding the coast. Sailing to the northward, Frobisher met with a gigantic iceberg, which fell in pieces within their sight, making as much noise as though a high cliff had fallen into the sea. They saw a number of Esquimaux, and perhaps the description given



CHRISTOPHER COLUMBUS.

of them by the commander is as good as any ever given in few words: "They be like to Tartars, with long black hair, broad faces, and flatte noses, and taunie in colour, wearing seale skinnies; and so doe the women, not differing in the



SIR MARTIN FROBISHER.

fashion, but the women are marked in the face with blewe streekes downe the cheekes and round about the eyes." They came near the ship timidly, and after a while one of them ventured into the ship's boat, when Frobisher presented

him with a bell and a knife, and sent him back with five of the crew. They were directed to land him apart from the spot where a number of his countrymen were assembled, but they disobeyed his orders, and were seized by the natives, together with the boat, and none of them were heard of more. Returning to the same spot a few days afterwards, one of the natives was enticed alongside the vessel, when Frobisher, a very powerful man, caught him fast, "and plucked him with maine force, boate and all, into his barke out of the sea. Whereupon, when he found himself in captivity, for very choler and disdaine he bit his tongue in twaine within his mouth; notwithstanding he died not thereof, but lived until he came to England, and then he died of cold which he had taken at sea." With this "strange infidele" Frobisher set sail for home, arriving at Harwich on October 2d.

The next voyage of Frobisher was instigated purely for the further discovery of the precious metal, reported by him to exist in large quantities on the east coast of Greenland. He was furnished with "one tall ship," of 180 tons or so, and two barques of about thirty tons each. On the way north they observed some enormous icebergs, more than half a mile in circuit, and seventy to eighty fathoms (210 to 240 yards) under water. The ice being perfectly fresh, Frobisher came to the conclusion that they "must be bredde in the sounds, or in some land neere the Pole." They loaded up with the ore from Hall's greater island, and on a small island in Frobisher Strait. "All the sands and cliffs did so glister, and had so bright a marquesite, that it seemed all to be gold, but upon tryall made it proved no better than black-lead."

On this expedition they had several altercations with the natives, and in one skirmish in York Sound killed five or six of them. It is said that they found here some of the apparel of their five unfortunate companions, who had been seized the previous year by the natives. By means of two captives they brought about some degree of intercourse with the Esquimaux, and left a letter, understanding that their own sailors were still alive, but they were never more seen. Having loaded with about two hundred tons of the supposed gold ore, they set sail for home, where they arrived safely, to the great delight of all. A "gold fever" spread, the cupidity of the heart was awakened; a dishonest man, who was an authority in such matters, and who, therefore, knew better, pronounced

the mica to be gold: the court, nobles, and merchants went crazy on the subject. It was determined that a third expedition should be despatched the following year (1578).

The fleet on this occasion consisted of no less than fifteen vessels. One hundred persons were taken to form a settlement, and remain there the complete year. Frobisher was appointed admiral and general. From first to last the voy-



FROBISHER PASSING GREENWICH.

age was disastrous. In the straits named after Frobisher, one of their larger barques struck so violently on a mass of ice that she sank in sight of the whole fleet, and although all the people on board were saved, a part of the house intended for the settlers went down with the wreck. A violent storm next ensued, which dispersed the fleet, some of the vessels being fixed in the ice of the strait, others being swept away to sea.

It was a severe season, and they were bewildered by fogs, snow, and mist. After many perils and much hardship, it was at length decided that each captain should load his ship with ore and set homewards. The fleet arrived in England on or about October 1st, having lost some forty persons. The ore being now carefully examined proved worthless pyrites; and the Arctic gold-mines seemed to have proved a "fizzle" as great as any of the worst which have succeeded them.

On the 7th of June, 1585, two vessels left Dartmouth in command of John Davis, and on the 19th of July were off the west coast of Greenland. As they proceeded northward, they observed "a rocky and mountainous land," its summit covered with snow, Davis naming it "The Land of Desolation." He could not land there, owing to the coast-ice, and after sundry explorations to the southward, and again to the northwestward, discovered an archipelago of islands, to which he gave the title of Gilbert Sound. After other explorations they reached a fine open passage (Cumberland Strait) between Frobisher's Archipelago and the island now called Cumberland Island. After a week's further stay they determined to sail for England, where they arrived safely on September 30th.

The second voyage of Davis had not been particularly prosperous either as regards commerce or discovery, but his persistency and perseverance induced the merchants to dispatch a third expedition in 1587. On this voyage he proceeded as far north as 73° , and discovered the strait which now bears his name. Davis made no more Arctic voyages. He was afterwards employed in the East Indian service.

In the year 1594 the United Provinces determined to send out an expedition in the hopes of finding a northern route to China and India. The city of Amsterdam contributed two vessels: Zeelandt and Enkhuysen one each. Willem Barentz, "a notable, skillfull, and wise pilote," represented Amsterdam, while the other vessels were respectively commanded by Cornelis Cornelison and Brand Ysbrants. The vessels left the Texel on June 5th, and soon after separated. Following first the fortunes of Cornelison and Ysbrants, we find that they reached Lapland on the 23d, and proceeded eastward and reached Waigatz Island. Sailing through Waigatz Strait, they found and were impeded much by large quantities of floating ice; later they reached an open sea perfectly clear of it. The

land to the southward was in sight, and trended apparently to the southeast. Without more ado they concluded that they had discovered an open passage round Northern Asia to China, and turned their vessels' bows homewards. Meanwhile, Barentz crossed the White Sea, and eventually made the west coast of Nova Zembla; proceeding thence northwards, naming several headlands and islands. About latitude $77^{\circ} 25'$ they encountered an immense field of ice, of which they could



MOCK SUNS, SEEN ON FOURTH OF JUNE, 1596, BY BARENTZ.

see no end from the mast-head, and they had to turn back. After becoming entangled in drift-ice, and experiencing misty, cold, and tempestuous weather, the crew began to murmur, and then refused positively to proceed. On the homeward voyage, after they had arrived at Maltfloe and Delgoy Islands, they met the other ships, the commanders of which were jubilant with the idea that they had discovered the Northeast Passage. At all events, on their return, the reports given by

on July 17th reached Nova Zembla. Arrived home in the following year, after a voyage of many hardships and trials.

In 1607 renewed the search for a northern route to China and Japan. Hitherto neither the northeast nor northwest had held out much hopes of success, and they now determined on a bold and novel attempt at sailing over the Pole itself. For this expedition Henry Hudson—already known as an experienced and intrepid seaman, and well skilled in nautical science—was chosen commander. This adventurous navigator left Gravesend on May 1st in a small barque, with only ten men

and a boy. The very name and tonnage of the vessel have been forgotten, but it is known to have been of the tiniest description. In the second week of June Hudson fell in with land—a headland of East Greenland—the weather at the time being foggy, and the sails and shrouds frozen. He examined other parts of this coast, feeling doubtful whether



SIR HENRY HUDSON.

he might not reach open water to the northward, and sail round Greenland. Later he reached Spitzbergen, where the ice to the north utterly baffled all his efforts to force a passage, and being short of supplies he set sail for England.

Two years later, 1609, we find Hudson on a third voyage of discovery. His movements were very erratic, and the only record left us does not explain them. He first doubled the North Cape, as though again in quest of the Northeast Passage; then turned westward to Newfoundland; thence again south as far as Charleston, South Carolina; then north to Cape Cod, soon after which he discovered the beau-

tiful Hudson River, at the mouth of which New York is now situated. Hudson's fourth and last voyage is that most intimately associated with his name on account of the cruel tragedy which terminated his life.

Several gentlemen of influence, among them Sir John Wolstenholme and Sir Dudley Digges, were so satisfied of the feasibility of making the Northwest Passage, that they fitted out a vessel at their own expense, and gave the command to Henry Hudson. The accounts of the voyage itself are meagre. We know, however, that he discovered the Strait and "Mediterranean" Sea. The vessel appropriated for this service was of fifty-five tons burden, victualled only, as



DEATH OF BEHRING.

it seems, for six months. She left the Thames on April 17th, 1610, and on June 9th she was off the entrance of Frobisher Strait, where Hudson was compelled to ply to the westward on account of the ice and contrary winds. During July and the latter part of August several islands and headlands were sighted and named, and at length they discovered a great strait formed by the northwest point of Labrador, and a cluster of islands, which led them into an extensive sea. Here Hudson's own testimony ends.

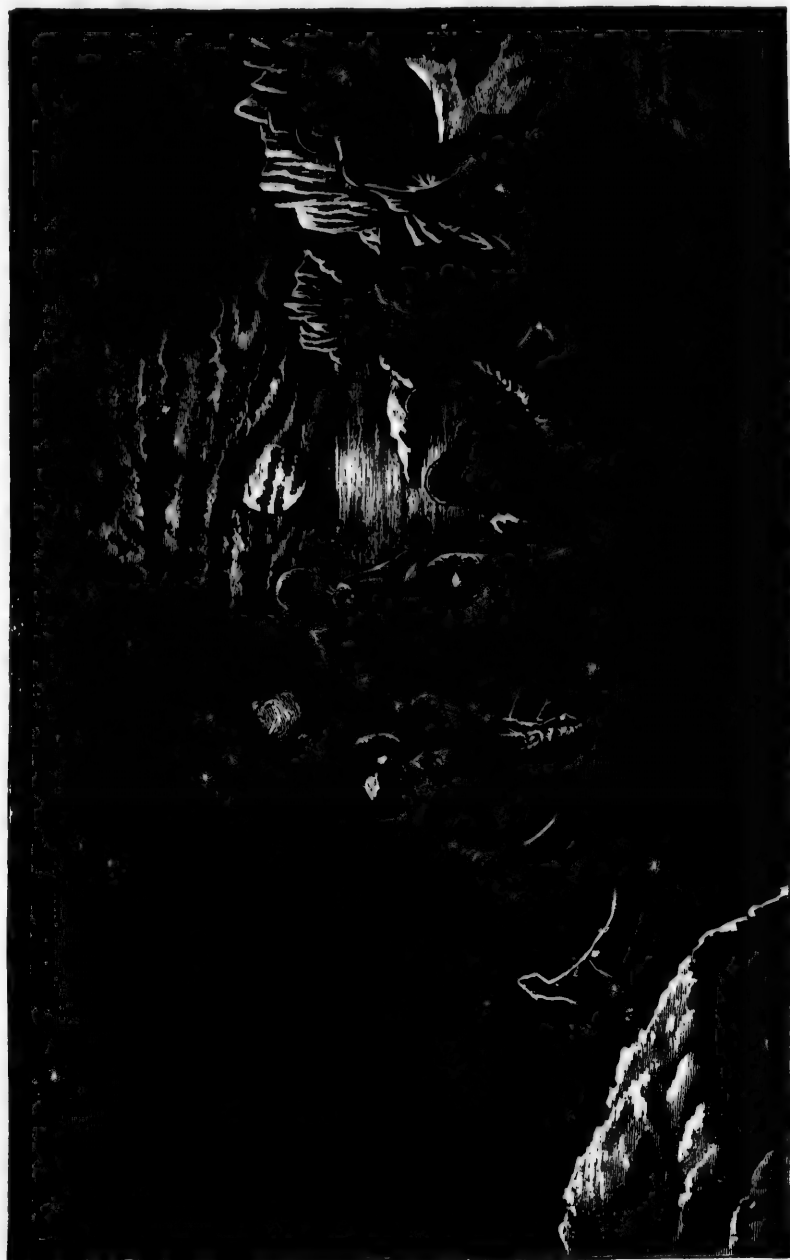
In 1616 Baffin explored the bay called after him, even entering the mouth of Lancaster Sound. For more than fifty years after his explorations no navigator penetrated be-

yond the spot reached by him. In 1743 the British Parliament offered a reward of £20,000 to the crew who should effect a northwest passage through Hudson Bay, and subsequently the conditions were extended so as to include any northern passage for ships, and an additional reward of £5,000 was offered to the crew that should penetrate to within one degree of the North Pole. In 1773 Captain Phipps, afterward Lord Mulgrave, under instructions to reach the North Pole, sailed along the shores of Spitzbergen to latitude $80^{\circ} 48'$, and in 1776 Captain Cook, sailing for the polar sea by way of Behring Strait, penetrated to latitude $70^{\circ} 45'$. In 1789 Mackenzie, in a land expedition, discovered and traced to its mouth the river called after him.

In spite of all these discoveries not a single line of the coast from Icy Cape to Baffin Bay was traced and thoroughly known. The eastern and western shores of Greenland to about 75° latitude were tolerably well defined from the visits of whaling vessels; Hudson Bay and Strait were partially known; but Baffin Bay, according to the statement of the discoverer, was bounded by land on the west, running parallel with the 90th meridian, and across what is now known as Barrow's Strait.

As early as the year 1527 the idea of a passage to the East Indies by the North Pole was suggested by a Bristol merchant to Henry VIII. of England, but no voyage seems to have been undertaken for the purpose of navigating the Arctic Seas till the commencement of the following century, when an expedition was fitted out at the expense of several merchants of London. This attempt was succeeded by others at different periods, and all of them were projected and carried out by private individuals. While the adventurers did not reach India by a nearer route than doubling the Cape of Good Hope, they evinced a fortitude, perseverance, and skill which deserve the admiration of the civilized world.

At length, after the lapse of above a century and a half, this interesting question became an object of royal patronage, and the expedition which was commanded by Captain Phipps was fitted out at the expense of the government. Captain Phipps, however, found it impossible to penetrate the wall of ice which extended for many degrees between the latitude of 80° and 81° to the north of Spitzbergen. His vessels were the *Racehorse* and *Carcass*: Captain Lutwidge being his



SIR HENRY HUDSON—DEATH OF THE BOY THAT ACCOMPANIED THE EXPEDITION.

second in command, in the latter vessel, and having with him, then a mere boy, Nelson, the future hero of England.

From the year 1648, when the famous Russian navigator, Deshnew, penetrated from the river Kolyma through the Polar into the Pacific Ocean, the Russians have been as arduous in their attempts to discover a northeast passage to the north of Cape Shelatskoi, as the English have been to sail to the northwest of the American continent, through Baffin Bay and Lancaster Sound. On the side of the Pacific many efforts have, within the last century, been made to further this object. In 1741 the celebrated Captain Behring discovered the straits which bear his name. From the period when Deshnew sailed on his expedition to the year 1764, when Admiral Tchitschagoff, an indefatigable and active officer, endeavored to force a passage round Spitzbergen, and thence to the present times, including the arduous efforts of Captain Billings and Vancouver, and the more recent one of M. Von Wrangell, the Russians have been untiring in their attempts to discover a passage eastward to the north of Cape Taimur and Cape Shelatskoi. And certainly, if skill, perseverance, and courage could have opened this passage, it would have been accomplished.

An expedition was despatched under the command of Sir John Ross in order to explore the scene of the former labors of Frobisher and Baffin. Still haunted with the golden dreams of a northwest passage, which Barrington and Beaufoy had in the last age so enthusiastically advocated, our nautical adventurers by no means relinquished the long-cherished chimera.

A thorough knowledge of the relative boundaries of land and ocean on our globe has in all ages and by all countries been considered one of the most important features of popular information. But to no country is this knowledge of such practical utility and such importance as to a maritime nation like Great Britain, whose merchant marine visits every port which is dependent upon distant quarters for the greater part of her necessary supplies, whether of food or of luxuries, which her population consume, and which her arts and manufactures require.

CHAPTER II.

ARCTIC EXPEDITIONS OF THE NINETEENTH CENTURY.

Sir John Ross—Captain Parry—Sir John Franklin—Russian Expeditions under Von Wrangell and Anjou—Captain Beechey—Captain Ross fixes the Position of the true Magnetic Pole—Back and Dr. King—Dease and Simpson—Dr. Rae finishes the Geographical Exploration of the North Coast of the American Continent—Sir John Franklin's last Expedition—Numerous Expeditions sent out in Search of him—Captain McClintock finds Proof of Franklin's Death—Commander Inglewood's Expedition—Sir John Franklin the Discoverer of the Northwestern Passage.

IN the year 1818 two vessels were fitted out by the British government to proceed toward the North Pole. Captain Sir John Ross and Lieutenant Parry were appointed commanders. No former expedition had been fitted out on so extensive a scale, or so completely equipped in every respect as this one. The circumstance which stimulated the sending out of these vessels was the open character of the bays and seas in those regions, very large quantities of the polar ice having floated down into the Atlantic for the previous three years. This expedition had instructions to discover the northwest passage. Another, under Captain Beechey and Lieutenant Franklin, afterward Sir John Franklin, was to penetrate to the North Pole. The objects of the latter expedition were entirely scientific. It passed north between Greenland and Spitzbergen, but did not go farther than latitude $80^{\circ} 34'$. Captain Ross sailed about sixty miles up Lancaster Sound, and returned with the report that it was a bay, through which there was no outlet to the ocean beyond. A year later another expedition under Lieutenant Parry passed through Lancaster and Melville Sounds beyond the 110th meridian, wintered at Melville Island, and returned to Great Britain the next summer. From York Factory an overland expedition under Lieutenant Franklin was sent out the same year, with instructions to explore the north coast of America, from the mouth of the Coppermine River eastward. He proceeded 550 miles east of the Coppermine to Point Turn-again, and then, having suffered great hardships, re-

turned to York Factory in 1822 without accomplishing the object.

Franklin, in descending the Coppermine River, was accompanied by as heroic a set of officers and men as ever trod a deck; among the former were Dr. Richardson, Lieutenant Back and Lieutenant Hood, and among the latter a faithful



LIEUTENANT BACK'S START—A JOURNEY OF 500 MILES FOR FOOD.

seaman named Hepburn. The Coppermine River had never been thoroughly explored, and the enterprise was one of great danger. Ascending the Hayes River on their inland route to the Coppermine, they accomplished 700 miles of river journey, over rapids and falls and obstacles and difficulties innumerable. From the 9th of September to the end of October

they were engaged in this task, and then the setting in of the ice compelled them to relinquish their labors in that direction for the present. Franklin, however, was not idle—it was not in the nature of the man to be so—and therefore he, Back and Hepburn started off in January westward, working up 850 miles, until in March they reached Fort Chipewyan, where many important observations were made. In July he was joined by Richardson and Hoed, and hoped to winter that year at the mouth of the Coppermine. A large party was made up, consisting of Franklin and his friends, seventeen French-Canadian *voyageurs*, three interpreters, and a considerable number of Indians who were to act as guides and hunters under the leadership of one Akaitcho. The start was all that could be desired, game plentiful, and everything promised well. But as they advanced to the north a change came over the spirit of their dream; food grew scarce, the difficulty of transit increased, and at last Akaitcho declared that to advance farther meant for the whole party to perish miserably. Franklin persisted, however, and would have braved all the prophesied risks, till Akaitcho said: "I will send some of my young men with you if you persist in going forward, but from the moment they set foot in your canoes I and my relatives shall mourn for them as dead." Discretion being the better part of valor, Franklin reluctantly determined to settle in winter quarters and continue the exploration in the summer. The place chosen for wintering was at Fort Enterprise, near the head of the Coppermine, and between 500 and 600 miles from Fort Chipewyan, the distance traversed by the gallant company in the course of the year 1820 having been 1,520 miles.

During the winter food grew scarcer and scarcer, until at last starvation was threatened. In addition to their own party, the Indians had to be provided for, and this greatly impoverished their resources. The Indians knew this, and, with a generosity which Christian men might sometimes imitate, gave their own food to the strangers who seemed more to need it. "We are used to starvation, you are not," they said: By-and-by a time came when the situation was gloomy in the extreme, ammunition and other articles, indispensable to the progress of the expedition, and food were fast failing. What was to be done? There was only one course open, and that was to journey on foot a distance of over 500 miles to Fort

Chipewyan, in the depth of an Arctic winter, for supplies. A volunteer was soon found. Lieutenant Back was not a man to allow his comrades to perish while he had strength and vigor to save them, and he undertook to perform the journey



DR. RICHARDSON, OF SIR JOHN FRANKLIN'S EXPEDITION, SAVING HIS COMPANION HEPBURN.

and obtain the needful supplies. Day after day he and his companions toiled on over ice and snow, and night after night braved the inclemency of the weather by camping out of doors. With snow-shoes galling their feet and ankles till

they bled profusely; with only sufficient food to keep them from starving, and, therefore, rendering them all the more susceptible to cold; with weather unusual in the severe region for its severity, on they went, until at last they reached the station, procured four sledges, laden to the full with needful things, and the promise of more to follow, and then, after a brief rest, set off again for Fort Enterprise.

During the journey Back travelled 1,104 miles, and when he rejoined his companions it was to find that his unprecedented journey was a success in every respect, for they had arrived at a stage in their experience when the aid he brought was indispensable.

In 1820 twenty-three Russian sledge expeditions were made by Von Wrangell and Anjou, who penetrated to latitude $70^{\circ} 51'$ and longitude $157^{\circ} 25'$ west, and reported an open sea in the distant north, which precluded further operations with sledges. In 1821 Captain Parry started on another expedition, and after proceeding through Hudson Strait and Fox Channel as far as Hekla and Fury Strait, returned in 1823. Two years later Franklin descended the Mackenzie River to the sea, and traced the coast for 374 miles. His voyage extended over 2,000 miles. About the same time Captain Beechey had sailed around Cape Horn, and through Behring Strait into Kotzebue Sound, but failed to meet Franklin. Captain Barry, in 1827, set out for the North Pole with sledge boats, which had been landed upon the northern shore of Spitzbergen, but soon returned, after reaching latitude $82^{\circ} 45'$. An expedition was fitted out in 1829 by Sir Felix Booth, and set out under the command of Captain Ross and Commander (afterward Sir James) Ross, in search of a north-western passage by some opening leading out of Prince Regent Inlet. In 1831, while on a sledging expedition, Captain Ross for the first time reached and fixed the position of the true magnetic pole, in latitude $70^{\circ} 5' 17''$ and longitude $96^{\circ} 46' 45''$. After many hardships, Captain Ross returned in the autumn of 1833. In the meantime, Back and Dr. King had set out on an overland expedition in search of Captain Ross and his party. They navigated the great Fish (Fhleivee-choh) River, afterward called Back River, reached the ocean at latitude $67^{\circ} 11'$, longitude $94^{\circ} 30'$, and after pushing forward to latitude $68^{\circ} 13'$, returned. The Hudson Bay Company then sent out Dease and Simpson, who



RICHARDSON'S ADVENTURE WITH WOLVES.

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descended the Mackenzie River to the sea, and then followed the coast to the west as far as Point Barrow. They discovered two large rivers, which they called Garry and Colville. They remained during the winter on Great Bear Lake, and in June, 1838, started on another expedition to the eastward. They reached the coast by way of the Coppermine,



BACK AND HIS ATTENDANTS REJOINING HIS FRIENDS.

and finding their progress stopped by the ice, a portion of the party set out on an overland expedition in an easterly direction. Passing Franklin's Turn-again, they discovered the Dease Strait, and at its eastern extremity a large headland. To the north they saw an extensive land, which they called Victoria Land. The sea beyond was entirely free of ice. In

1839 they sailed through Dease Strait, and reached the spot which had been visited by Back five years previous. The entire American coast line had now been explored, except that portion lying between Dease and Simpson's extreme point on the west and Felix Harbor on the east, and that portion lying between Felix Harbor and that point reached by Parry in 1822, at the entrance of the Strait of Hekla and Fury.

To settle the question whether it was possible to pass with ships between Bothnia and the American mainland, the Hudson Bay Company, in 1846, sent out Dr. John Rae, who proved that there is no outlet toward the west through Prince Regent Inlet. Dr. Rae explored Committee Bay, and reached a point from which he saw a headland, which he called Cape Ellice, within ten miles of Fury and Hekla Strait. Thus was finished, with the exception of Fury and Hekla Strait, a geographical exploration of the north coast of the American continent on May 27th, 1847.

Sir John Franklin, with the *Erebus* and *Terror*, each fitted out with a small steam-engine and a screw-propeller, and the two carrying 129 men and provisions for three years, in May, 1845, sailed on his last expedition to discover the northwestern passage. His instructions were to pass through Baffin Bay and Lancaster Sound, then west in about latitude $74^{\circ} 15'$ to about longitude 98° , thence to penetrate south and west toward Behring Strait. The vessels were last seen about the centre of Baffin Bay.

The *Terror* is the vessel in which Captain Sir G. Back made his perilous attempt to reach Repulse Bay, in 1836.

The *Erebus* and *Terror* were not expected home, unless success had early rewarded their efforts, or some casualty hastened their return, before the close of 1847, nor were any tidings anticipated from them in the interval; but when the autumn of 1847 arrived without any intelligence of the ships, the attention of the British Government was directed to the necessity of searching for and conveying relief to them in case of their being imprisoned in the ice or wrecked, and in want of provisions and means of transport.

For this purpose a searching expedition in three divisions was fitted out by the government in the early part of 1848. The investigation was directed to three different quarters simultaneously, viz.: 1. To that by which, in case of success,

the ships would come out of the Polar Sea to the westward, or Behring Strait. This consisted of a single ship, the Plover, commanded by Captain Moore, which left England in the latter end of January for the purpose of entering Behring Strait. It was intended that she should arrive there

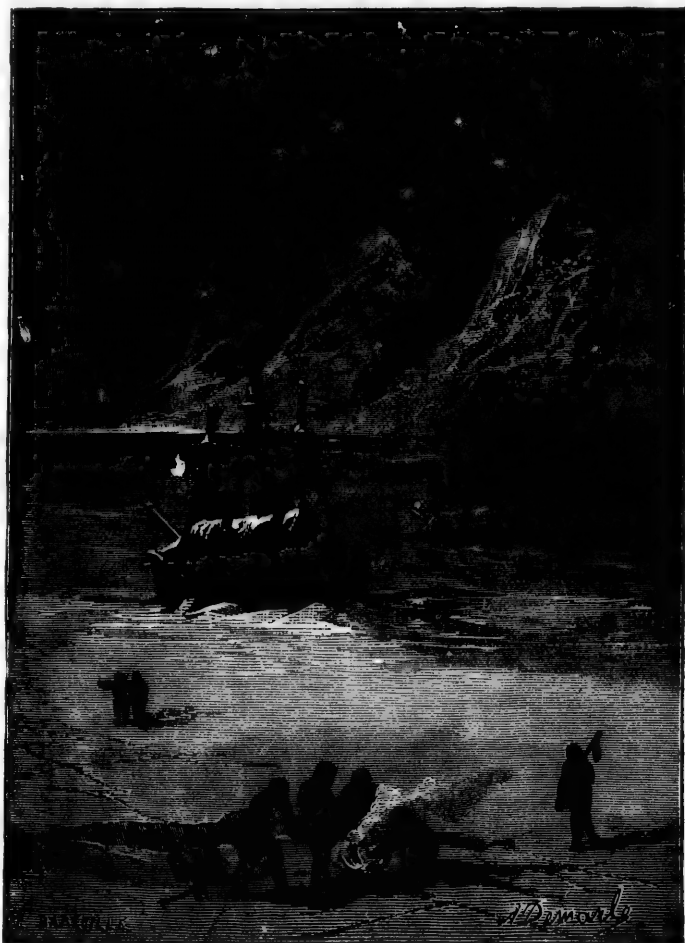


SIR JOHN FRANKLIN.

in the month of July, and having looked out for a winter harbor she might send out her boats northward and eastward, in which directions the discovery ships, if successful, would be met with. The Plover, however, in her first season, never

even approached the place of her destination, owing to her setting off too late, and to her bad sailing properties.

The second division of the expedition was one of boats, to explore the coast of the Arctic Sea between the Mackenzie



THE EREBUS AND TERROR WINTERING AT THE HEAD OF
WELLINGTON CHANNEL.

and Coppermine rivers, or from the 135th to the 115th degree of west longitude, together with the south coast of Wollaston Land, it being supposed that if Sir John Franklin's party had

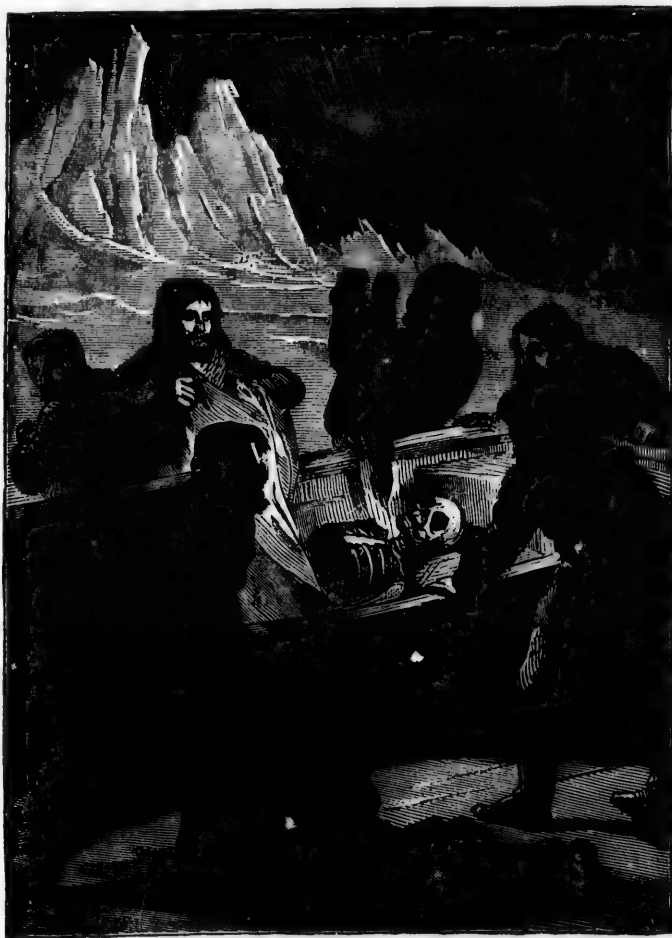
been compelled to leave the ships and take to the boats they would make for this coast, whence they could reach the Hudson Bay Company's posts. This party was placed under the command of the faithful friend of Franklin and the companion of his former travels, Dr. Sir John Richardson, who landed at New York in April, 1848, and hastened to join his men and boats, which were already in advance toward the Arctic shore. He was, however, unsuccessful in his search.

The remaining and most important portion of this searching expedition consisted of two ships under the command of Sir James Ross, which sailed in May, 1848, for the locality in which Franklin's ships entered on this course of discovery, viz., the eastern side of Davis Strait. These did not, however, succeed, owing to the state of the ice on getting into Lancaster Sound, until the season for operations had nearly closed. These ships wintered in the neighborhood of Leopold Island, Regent Inlet, and missing the store-ship sent out with provisions and fuel to enable them to stop out another year, were driven out through the strait by the pack ice, and returned home unsuccessful.

These three expeditions were followed by numerous others sent out by the British Government and by Lady Franklin. In 1850 alone, eight expeditions were out.

In 1851 Lieutenant McClintock reached, in longitude $114^{\circ} 20'$, latitude $74^{\circ} 38'$, the farthest western limit ever attained by explorers starting from Baffin Bay. In 1852 Commander Inglewood sailed up Smith Sound to latitude $78^{\circ} 28' 21''$, 140 miles further than any previous navigators had reached, and established the existence of a channel connecting Baffin Bay with the great polar basin. Traces of the Franklin expedition were found in 1850 at Cape Riley and Beechey Island, and articles belonging to Sir John Franklin's officers were seen in possession of the Esquimaux at Selby Bay in 1854 by Dr. Rae, but authentic information concerning the fate of Franklin was only obtained in 1859. An expedition sent out by Lady Franklin under Captain Francis McClintock passed in 1857 through Baffin Bay, Lancaster Sound, and Prince Regent Inlet to Bellot Strait, whence sledge expeditions were made to King William Land. Here, in 1859, were found relics of Sir John Franklin's expedition. At Point Victory was found a tin case containing a brief record dated May 28th, 1847, to the effect that the expedition

had passed the previous winter in latitude $70^{\circ} 5'$, longitude $98^{\circ} 23'$, and that of the previous year at Beechey Island after ascending the Wellington Channel to latitude 77° , and returning by the west side of Cornwallis Island. All the party



DR. RAE FINDING THE MUTILATED CORPSE OF ONE OF
• • SIR JOHN FRANKLIN'S MEN.

were then well. On the margin was another record dated April 25th, 1848, to the effect that 105 men under Captain Crosier had abandoned the two vessels on April 22d, five

leagues N. N. W., and had landed at that place, latitude $69^{\circ} 37' 42''$, longitude $98^{\circ} 4' 15''$; that Sir John Franklin had died June 11th, 1847, and that the total deaths were nine officers and fifteen men. Quantities of clothing were found but no trace of the vessels. It was evident that the whole expedition had perished. It seems that Sir John Franklin passed up Lancaster Sound, explored Wellington Channel to a point farther north than was reached by those who were sent out to search for his party, Penny, De Haven and Belcher, sailed around Cornwallis Island, and wintered on Beechey Island. In the spring and summer of 1846 he either navigated Bellot Strait, or more probably pushed through Peel Sound, and finally reached Victoria Strait, and *thus supplied the only link wanting to complete a chain of water communication between the two oceans. Thus Sir John Franklin is the discoverer of the Northwestern Passage.* McClure, in 1850-53, had been the first to pass from Behring Strait to Baffin Bay.

It would be ungenerous in telling the story of some of the searches for Sir John Franklin to overlook the services rendered by Lieutenant Bellot, the representative of France. Bellot, whose humble origin, rose to position by his own perseverance and industry. On his first expedition, in the Prince Albert, his conduct was such that he was received in England with enthusiasm; the British government made known to France how well satisfied it was with the zealous and intelligent co-operation of the young officer.

His second expedition was in the *Phoenix*. Arriving in the Polar regions, it was important that certain despatches should be conveyed to Sir Edward Belcher without delay, and Bellot, who knew that their transmission was one of the special and urgent objects of the mission of the *Phoenix* and that it was necessary they should be promptly delivered, himself volunteered to carry them, and with four men, a sledge and an india-rubber canoe started off. Bellot talked to his men of the danger of their position. He went forth to see how the ice was driving, and in a few minutes afterwards one of his men followed him. The wind was blowing with a terrific fury. Bellot was not to be seen. His name was shouted, but no answer came. On the opposite side of a crack about five fathoms wide was his stick.

And that was all! There could be no doubt that when he went forward to see how the ice was driving the wind carried

him off his feet and he slipped into the crack, from which he never arose again. Never was a young hero mourned more deeply than he. All France mourned him, and England



LIEUTENANT J. BELLOT.

mourned him, and even the Esquimaux, when they heard of his death, cried out with bitter weeping: "Poor Bellot! poor Bellot!"

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CHAPTER III.

THE FIRST AMERICAN ARCTIC EXPEDITIONS.

The first Grinnell Expedition under command of Lieutenant De Haven—After wintering near Beechey Island it returns safely to New York—Traces of Sir John Franklin's Expedition found—An Arctic Winter and its Horrors—Scurvy—The Expedition of Commander Inglefield, of the British Navy—He reaches Latitude $78^{\circ} 28' 21''$, about 140 miles farther north than had been previously attained—Lieutenant Osborn's Expedition.

IN 1850 an expedition was sent out by Mr. Henry Grinnell, a merchant of New York, in search of Sir John Franklin and his companions. Mr. Grinnell's expedition consisted of only two small brigs, the *Advance* of one hundred and forty tons, the *Rescue* of only ninety tons. The former had been engaged in the Havana trade, the latter was a new vessel built for the merchant service. Both were strengthened for the Arctic voyage at a heavy cost. The command was given to Lieutenant E. De Haven, a young naval officer, who accompanied the United States exploring expedition. The result has proved that a better choice could not have been made. His officers consisted of Mr. Murdoch, sailing-master; Dr. E. K. Kane, surgeon and naturalist; and Mr. Lovell, midshipman. The *Advance* had a crew of twelve men when she sailed; two of them complaining of sickness, and expressing a desire to return home, were left at the Danish settlement at Disco Island, on the coast of Greenland.

The expedition left New York on the 23d of May, 1850, and was absent a little more than sixteen months. They passed the eastern extremity of Newfoundland ten days after leaving Sandy Hook, and then sailed E. N. E., directly for Cape Comfort, on the coast of Greenland. The weather was generally fine, and only a single accident occurred on the voyage to that country of frost and snow. Off the coast of Labrador they met an iceberg making its way toward the tropics. The night was very dark, and as the huge voyager had no "light out," the *Advance* could not be censured for running foul. She was punished, however, by the loss of her

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jib-boom, as she ran against the iceberg at the rate of seven or eight knots an hour.

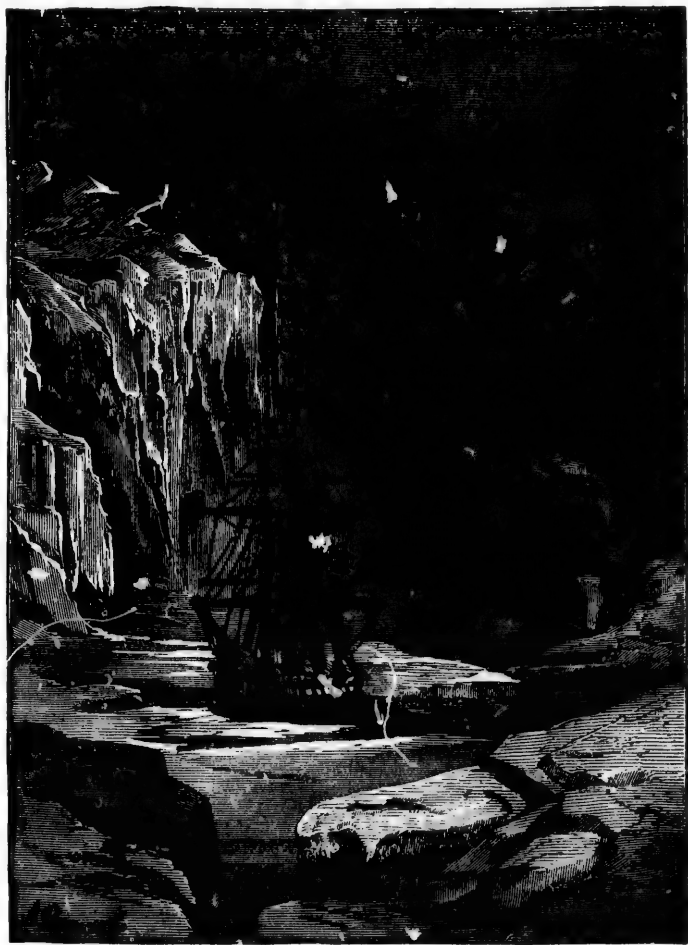
The voyagers sailed along the southwest coast of Greenland, sometimes in the midst of broad acres of broken ice, as far as Whale Island.

From Whale Island a boat, with two officers and four seamen, was sent to Disco Island, a distance of about twenty-six miles, to a Danish settlement there, to procure skin clothing and other articles necessary for use during the rigors of a polar winter.

When the expedition reached Melville Bay, which, on account of its fearful character, is also called the *Devil's Nip*, the voyagers began to witness more of the grandeur and perils of Arctic scenes. Icebergs of all dimensions came bearing down from the polar seas. They also encountered immense floes, with only narrow channels between, and at times their situation was exceedingly perilous. On one occasion, after heaving through fields of ice for five consecutive weeks, two immense floes, between which they were making their way, gradually approached each other, and for several hours they expected their vessels would be crushed. An immense cake of ice, six or eight feet thick, slid under the *Rescue*, lifting her almost "high and dry," and careening her partially upon her beam ends. By means of ice-anchors (large iron hooks) they kept her from capsizing. In this position they remained about sixty hours, when, with saws and axes, they succeeded in relieving her. The ice now opened a little, and they finally warped through into clear water. While they were thus confined, polar bears came around them in abundance, greedy for prey, and the seamen indulged a little in the perilous sports of the chase.

The open sea continued but a short time, when they again became entangled among bergs, floes and hummocks, and encountered the most fearful perils. Sometimes they anchored their vessels to icebergs and sometimes to floes, or masses of hummock. It was in this fearful region that they first encountered pack-ice, and there they were locked in from the 7th to the 23d of July. During that time they were joined by the yacht *Prince Albert*, commanded by Captain Forsyth, of the British Navy, and together the three vessels were anchored for a while to an immense piece of ice, in sight of the *Devil's Thumb*. That high, rocky peak, situated in latitude 74°

22', was about thirty miles distant, and, with the dark hills adjacent, presented a strange aspect where all was white and glittering. From the Devil's Thumb the American vessels passed onward through the pack toward Sabine Island,



THE ADVANCE AND THE RESCUE IN A "LEAD" OF ICE.

while the Prince Albert essayed to make a more westerly course. They reached Cape York in the beginning of August.

At Cape Dudley Digges they were charmed by the sight of the Crimson Cliffs, spoken of by Captain Parry and other

Arctic navigators. These are lofty cliffs of dark brown stone covered with snow of a rich crimson color. This was the most northern point to which the expedition penetrated. The whole coast which they had passed from Disco to this cape is high, rugged and barren, only some of the low points, stretching into the sea, bearing a species of dwarf fir. Northeast from the cape rise the Arctic Highlands to an unknown altitude; and stretching away northward is the unexplored Smith's Sound, filled with impenetrable ice.

From Cape Dudley Digges, the Advance and Rescue made Wolstenholme Sound, and then changing their course to the southwest, emerged from the fields into the open waters of Lancaster Sound. Here, on the 18th of August, they encountered a tremendous gale, which lasted about twenty-four hours. The two vessels parted company during the storm and remained separate several days. Across Lancaster Sound the Advance made her way to Barrow's Straits, and on the 22d discovered the Prince Albert on the southern shore of the straits, near Leopold Island, a mass of lofty, precipitous rocks, dark and barren, and hooded and draped with snow.

The two vessels remained together a day or two, when they parted company, the Prince Albert to return home and the Advance to make further explorations. It was off Leopold Island, on the 22d of August, that the "mad Yankee" took the lead through the vast masses of floating ice.

From Leopold Island the Advance proceeded to the northwest, and on the 25th reached Cape Riley, another amorphous mass, not so regular and precipitate as Leopold Island, but more lofty. Here a strong tide, setting in to the shore, drifted the Advance toward the beach, where she stranded. Around her were small bergs and large masses of floating ice, all under the influence of the strong current. It was about two o'clock in the afternoon when she struck. By diligent labor in removing everything from her deck to a small floe, she was so lightened that at four o'clock the next morning she floated, and soon everything was properly replaced.

Near Cape Riley the Americans fell in with a portion of an English expedition, and there also the Rescue, left behind in the gale in Lancaster Sound, overtook the Advance. There was Captain Penny with the Sophia and Lady Franklin; the veteran Sir John Ross with the Felix, and Commodore Austin with the Resolute steamer. Together the navigators of both

nations explored the coast at and near Cape Riley, and on the 27th they saw in a cove on the shore of Beechey Island, or Beechey Cape, on the east side of the entrance to Wellington Channel, unmistakable evidence that Sir John Franklin and his companions were there in April, 1846. There they found many articles known to belong to the British Navy, and some that were the property of the *Erebus* and *Terror*, the ships under the command of Sir John. There lay, bleached to the whiteness of the surrounding snow, a piece of canvas with the name of the *Terror* marked upon it with indestructible charcoal. It was very faint, yet perfectly legible. Near it was a guide-board lying flat upon its face, having been prostrated by the wind. It had evidently been used to direct exploring parties to the vessels, or, rather, to the encampment on shore. The board was pine, thirteen inches in length and six and a half in breadth, and nailed to a boarding pike eight feet in length. It is supposed that the sudden opening of the ice caused Sir John to depart hastily, and in so doing this pike and its board were left behind. They also found a large number of tin canisters, such as are used for packing meats for a sea-voyage; an anvil block; remnants of clothing, which evinced by numerous patches and their threadbare character that they had been worn as long as the owners could keep them on; the remains of an India-rubber glove, lined with wool; some old sacks; a cask, or tub, partly filled with charcoal, and an unfinished rope-mat, which, like other fibrous fabrics, was bleached white.

But the most melancholy traces of the navigators were three graves in a little sheltered cove, each with a board at the head bearing the name of the sleeper below. These inscriptions testify positively when Sir John and his companions were there. The board at the head of the grave on the left has the following inscription:

"Sacred to the memory of JOHN TORRINGTON, who departed this life January 1st, A. D. 1846, on board her Majesty's ship *Terror*, aged 20 years."

On the centre one—"Sacred to the memory of JOHN HARTNELL, A. B., of her Majesty's ship *Erebus*; died January 4th, 1846, aged 25 years. 'Thus saith the Lord of Hosts, Consider your ways;' Haggai, chap. i., 5, 7."

On the right—"Sacred to the memory of W. BRAINE, R. M., of her Majesty's ship *Erebus*, who died April 3d, 1846, aged 32 years. 'Choose you this day whom you will serve;' Joshua, chap. xxiv., part of the 15th verse."

How much later than April 3d Sir John remained at Beechey cannot be determined. They saw evidences of his having gone northward, for sledge tracks in that direction were visible.

Leaving Beechey Cape, the expedition forced its way through the ice to Barrow's Inlet, where they narrowly escaped being frozen in for the winter. They endeavored to enter the inlet, for the purpose of making it their winter quarters, but were prevented by the mass of pack-ice at its entrance. It was on the 4th of September, 1850, when they arrived there, and after remaining seven or eight days, they abandoned the attempt to enter. On the right and left are seen the dark rocks at the entrance of the inlet, and in the centre of the frozen waters and the range of hills beyond. There was much smooth ice within the inlet, and while the vessels lay anchored to the "field," officers and crew exercised and amused themselves by skating. On the left of the inlet (indicated by the dark conical object), they discovered a cairn (a heap of stones with a cavity), eight or ten feet in height, which was erected by Captain Ommaney of the English expedition then in the polar waters. Within it he had placed two letters, for "Whom it might concern." Commander De Haven also deposited a letter there. The rocks, here, presented vast fissures made by the frost; and at the foot of the cliff on the right, that powerful agent had cast down vast heaps of *débris*.

From Barlow's Inlet, our expedition moved slowly westward, battling with the ice every rood of the way, until they reached Griffin's Island, at about 96° west longitude from Greenwich. This was attained on the 11th, and was the extreme westing made by the expedition. All beyond seemed impenetrable ice; and, despairing of making any further discoveries before the winter should set in, they resolved to return home. Turning eastward, they hoped to reach Davis' Strait by the southern route, before the cold and darkness came on; but they were doomed to disappointment. Near the entrance to Wellington Channel they became completely locked in by hummock-ice, and soon found themselves drifting with an irresistible tide up that channel toward the pole.

The summer day was drawing to a close; the diurnal visits of the pale sun were rapidly shortening, and soon the long polar night, with all its darkness and horrors, would fall upon them. Slowly they drifted in those vast fields of ice, whither,

or to what result, they knew not. Locked in the moving yet compact mass; liable at every moment to be crushed; far away from land; the mercury sinking daily lower and lower from the zero figure, toward the point where that metal freezes, they felt small hope of ever reaching home again. Yet they prepared for winter comforts and winter sports, as cheerfully as if lying safe in Barlow's Inlet. As the winter



LADY FRANKLIN.

advanced, the crews of both the vessels went on board the larger one. They unshipped the rudders of each, to prevent their being injured by the ice, covered the deck of the Advance with felt, prepared their stores, and made arrangements for enduring the long winter now upon them. Physical and mental activity being necessary for the preservation of health,

they daily exercised in the open air for several hours. They built ice huts, hunted the huge white bears and the little polar foxes, and when the darkness of the winter night had spread over them they arranged indoor amusements and employments.

Before the end of October, the sun made its appearance for the last time, and the awful polar night closed in. Early in November they wholly abandoned the Rescue, and both crews made the Advance their permanent winter home. The cold soon became intense; the mercury congealed, and the spirit thermometer indicated 46° below zero. Its average range was 30° to 35° . They had drifted helplessly up Wellington Channel, almost to the latitude from whence Captain Penny saw an open sea. All this while the immense fields of hummock-ice were moving, and the vessels were in hourly danger of being crushed and destroyed. At length, while drifting through Barrow's Straits, the congealed mass, as if crushed together by the opposite shores, became more compact, and the Advance was elevated almost seven feet by the stern, and keeled two feet eight inches starboard. In this position she remained, with very little alteration, for five consecutive months; for, soon after entering Baffin Bay in the midst of the winter, the ice became frozen in one immense tract, covering millions of acres. Thus frozen in, sometimes more than a hundred miles from land, they drifted slowly along the southwest coast of Baffin Bay, a distance of more than a thousand miles from Wellington Channel. For eleven weeks that dreary night continued, and during that time the disc of the sun was never seen above the horizon. Yet nature was not wholly forbidding in aspect. Sometimes the Aurora Borealis would flash up still farther northward; and sometimes Aurora Parhelia—mock suns and mock moons—would appear in varied beauty in the starry sky. Brilliant, too, were the northern constellations; and when the moon was at its full, it made its stately circuit in the heavens, without descending below the horizon, and lighted up the vast piles of ice with a pale lustre, almost as great as the morning twilights of more genial skies.

Around the vessels the crews built a wall of ice; and in ice huts they stowed away their cordage and stores, to make room for exercise on the decks. They organized a theatrical company, and amused themselves and the officers with comedy

25th April 1848. Kays left. Tenor and
 "any hundred" since 14 Sept 1846
 of Captain F.R. G. & Co.
 The ships & crews commanding the last day
 of the voyage were scattered on the 22nd April. 5 leagues N.W. of them

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of Captain F.R. and R. were sent on the 22nd April 5 leagues N.W. of this

James Fitzgibbon Captain H.M.S. R. and R.

26
to 18 with Jack Brown

H. M. S. ships Erebus and Terror

Menthered in the Sea in

28 of May 1847 Lat 70° 5' N Long 90° 23' W

Having wintered in 1846-7 at Beechey Island
in Lat 74° 45' 28" N Long 91° 39' 15" W after having
ascended Wellington Channel to Lat 77° and returned
by the West side of Cornwallis Island.

John Franklin commanding the Expedition
All well

Whoever finds this paper is requested to forward it to the Secretary
of the Admiralty, London, with a note of the time and place at which it
was found, or, if more convenient, to deliver it for that purpose to the
British Consul at the nearest Port.

Quiconque trouvera ce papier est prié d'y marquer le temps et le lieu
où il l'aura trouvé, et de le faire parvenir au plus tôt au secrétaire de l'A-
mirauté britannique à Londres.

CUALQUIERA que hallare este Papel, se le suplica de enviarlo al Secre-
tario del Almirantazgo, en Londres, con una nota del tiempo y del lugar
en donde se halló.

FEN ieder die dit Papier mogt vinden, wordt hiermede ver ogt, om het
zelve, ten spoedigste, te willen zenden aan den Heer Minister van de
Marine der Nederlanden in 's Gravenhage, of wel aan den Secretaris der
Britsche Admiraliteit, te London, en daar by te voegen eene Nota, in-
houdende de tyd en de plaats alwaar dit Papier is gevonden geworden.

FINDEREN af dette Papiir ombedes, naar Leilighed gives, at sende sam-
me til Admiralitets Secretairen i London, eller nærmeste Embedsmand i
Danmark, Norge, eller Sverrig. Tiden og Stødt hvor dette er fundet
ønskes venskabeligt paategnet.

WER diesen Zettel findet, wird hier-durch ersucht denselben an den
Secretair des Admiralitets in London einzusenden, mit gefälliger an-
gabe an welchen ort und zu welcher zeit er gefunden worden ist.

Party consisting of 2 Officers and 6 men
left the ships on Monday 24th May 1847

James Fitzgibbon
Lieut. Hobson

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well performed. Behind the pieces of hummock each actor learned his part, and by means of calico they transformed themselves into female characters, as occasion required. These dramas were acted on the deck of the *Advance*, sometimes while the thermometer indicated 30° below zero, and actors and audiences highly enjoyed the fun. They also went in parties during that long night, fully armed, to hunt the polar bear, the grim monarch of the frozen north, on which occasions they often encountered perilous adventures. They played at foot-ball, and exercised themselves in drawing sledges, heavily laden with provisions. Five hours of each twenty-four they thus exercised in the open air, and once a week each man washed his whole body in cold snow-water. Serious sickness was consequently avoided, and the scurvy, which attacked them, soon yielded to remedies.

Often during that fearful night they expected the disaster of having their vessels crushed. All through November and December, before the ice became fast, they slept in their clothes, with knapsacks on their backs, and sledges upon the ice, laden with stores, not knowing at what moment the vessels might be demolished, and themselves forced to leave them, and make their way toward land. On the 8th of December and the 23d of January, they actually lowered their boats and stood upon the ice, for the crushing masses were making the timbers of the gallant vessel creak and its decks to rise in the centre. They were then ninety miles from land, and hope hardly whispered an encouraging idea of life being sustained. On the latter occasion, when officers and crew stood upon the ice, with the ropes of their provision sledges in their hands, a terrible snow-drift came from the northeast, and intense darkness shrouded them. Had the vessel then been crushed, all must have perished.

Early in February the northern horizon began to be streaked with gorgeous twilight, the herald of the approaching king of day; and on the 18th the disc of the sun first appeared above the horizon. As its golden rim rose above the glittering snow-drifts and piles of ice, three hearty cheers went up from those hardy mariners. Day after day it rose higher and higher, and while the pallid faces of the voyagers, bleached during that long night, darkened by its beams, the vast masses of ice began to yield to its fervid influence. The scurvy disappeared, and from that time until their arrival

home not a man suffered from sickness. As they slowly drifted through Davis' Straits, and the ice gave indications of breaking up, the voyagers made preparations for sailing. The *Rescue* was reoccupied (May 13th, 1851), and her stone-post, which had been broken by the ice in Barrow's Straits, was repaired. To accomplish this they were obliged to dig away the ice, which was from twelve to fourteen feet thick around her. They reshipped their rudders, removed the felt covering, placed their stores on deck, and then patiently awaited the disruption of the ice. This event was very sudden and appalling. It began to give way on the 5th of June, and in the space of twenty minutes the whole mass, as far as the eye could reach, became one vast field of moving floes. On the 10th of June they emerged into open water, a little south of the Arctic Circle, in latitude $65^{\circ} 30'$. They immediately repaired to Godhaven, on the coast of Greenland, where they refitted, and, unappalled by the perils through which they had just passed, they once more turned their prows northward to encounter anew the ice squadrons of Baffin Bay. Again they traversed the coast of Greenland to about the 73d degree, when they bore to the westward, and on the 7th and 8th of July passed the English whaling fleet near the Dutch Islands. Onward they pressed through the accumulating ice to Baffin Island, where, on the 11th, they were joined by the *Prince Albert*, then out upon another cruise. They continued in company until the 3d of August, when the *Albert* departed for the westward, determined to try the more southern passage. Here again the expedition encountered vast fields of hummock-ice, and were subjected to the most imminent perils. The floating ice, as if moved by adverse currents, tumbled in huge masses, and reared upon the sides of the sturdy little vessels like monsters of the deep intent upon destruction. These masses broke in the bulwarks, and sometimes fell over upon the decks with terrible force, like rocks rolled over a plain by mountain torrents. The noise was fearful; so deafening that the mariners could scarcely hear each other's voices. The sounds of these rolling masses, together with the rending of the icebergs floating near, and the vast floes, produced a din like the discharge of a thousand pieces of ordnance upon a field of battle.

Finding the north and west closed against further progress

by impenetrable ice, the brave De Haven was balked, and turning his vessels homeward they came out into an open sea, somewhat crippled, but not a plank seriously started. During a storm off the banks of Newfoundland, a thousand miles from New York, the vessels parted company. The Advance arrived safely at the navy yard at Brooklyn on the 30th of September, and the Rescue joined her there a few days afterward. Toward the close of October the government resigned the vessels into the hands of Mr. Grinnell to be used in other service, but with the stipulation that they were to be subject to the order of the Secretary of the Navy in the spring if required for another expedition in search of Sir John Franklin.

In 1852 Commander Inglefield set out on an expedition in the English steamer Isabel from Fair Island. On the 30th day of July the expedition first saw the snowy mountains of Greenland. Several Danish settlements were visited, and then it proceeded to Smith's Sound, the upper or northern continuation of Baffin Bay. The western shore of this body of water, which forms a part of the polar ocean, was composed of a high range of ice-covered mountains, which were called after the Prince of Wales. The extreme northern point of these mountains was named Victoria Head in honor of the British Queen. The most northern point discovered by Captain Inglefield on the eastern shore of this sea was named by him after the Danish monarch Frederick VII. This steamer reached latitude $78^{\circ} 28' 21''$, about 140 miles farther north than had been attained by any previous navigator. Not having discovered any traces of Sir John Franklin Captain Inglefield returned after an absence of precisely four months from the day of starting. Another expedition in search of Sir John Franklin started in 1850 under instructions of the British Admiralty. It was commanded by Lieutenant Sherard Osborn, and consisted of the steam-vessels Pioneer and Intrepid, and returned to England in October, 1851. Other British expeditions were commanded by Sir John Richardson and Captain William Kennedy.

CHAPTER IV.

THE SECOND GRINNELL EXPEDITION, COMMANDED BY DR. E. K. KANE.

Two Winters in the Arctic Region, the first in Latitude $78^{\circ} 37'$, Longitude $70^{\circ} 40'$ —A Sledge Expedition from here pushes as far as Cape Constitution in Washington Land, Latitude $81^{\circ} 27'$, and finds Kennedy Channel free from Ice, abounding with Animal Life, and opening in a great Polar Sea—Safe Return to the United States in 1855.

OF the several expeditions sent out in 1853 the most important was that fitted out by Mr. Grinnell, of New York, Mr. Peabody, of London, and others, and commanded by Dr. E. K. Kane.

Dr. Kane received his orders from the Navy Department at Washington to conduct an expedition into the Arctic regions in search of the great English navigator. The ship *Advance*, in which he had formerly sailed, was placed under his command. His party numbered seventeen picked men. The brig sailed from the port of New York on the 30th of May, 1853, and in eighteen days arrived at St. John's, Newfoundland. After providing themselves at this place with an additional stock of fresh meat, and a valuable team of Esquimau dogs, they steered for the coast of Greenland.

On the 1st of July Dr. Kane entered the harbor of Fisker-noes, one of the Danish settlements of Greenland. Some fresh provisions were here obtained, and an Esquimau hunter of superior skill was enlisted in the service of the party.

Proceeding on from this point the other Danish settlements of Greenland were successively visited—Lichtenfels, Sukkertoppen, Proven, Upernavik, at the last of which places the first Grinnell expedition of 1851 had rested after its winter drift. At length they reached Yotlik, the most northern point in Greenland inhabited by human beings. Beyond this the coast may be regarded as having been until that period unexplored. From Yotlik Dr. Kane steered northward toward Baffin Islands, which he found then clear of ice, and

passing by Duck Island bore away for Wilcox Point. As he approached Melville Bay he was enveloped in a thick fog, during the prevalence of which he drifted among the icebergs. After a hard day's work with the boats, they towed the brig away from these unpleasant and dangerous neighbors. He then determined to stand westward and double Melville Bay by an outside passage, unless prevented and intercepted by the pack.

On the 5th of August they passed the Crimson Cliffs, so called from the appearance usually presented by their snow-clad summits. Next day they reached Hakluyt Island, which is surmounted by a tall spire springing six hundred feet into the heavens above the level of the water. They soon passed Capes Alexander and Isabella, and thus entered Smith's Sound. Having reached Littleton Island, Dr. Kane determined to deposit here a supply of provisions and some permanent traces of his route, to be used in case it should be necessary afterward to send an exploring party to discover the fate of his own. The life-boat was accordingly buried here, containing a supply of pemmican, blankets, and India-rubber cloth. They endeavored to fortify the precious deposit from the claws of the polar bear.

The 20th of August still found the brig and her crew navigating the dangerous and ice-laden waters of Smith's Sound. At this date they encountered a storm of extraordinary fury, and made one of those narrow escapes from destruction which sometimes give an air more of romance than of reality to the adventures of Arctic explorers. In a terrific gale their three hawsers were broken, and the brig drifted with fearful rapidity under the furious pressure of the storm. The navigators continued their northern route by tracking along the ice-belt which hugs the frozen shore. On the 23d of August they had reached $78^{\circ} 41'$ north latitude. This placed them farther north than any of their predecessors had been, except Captain Parry.

From his researches in this region, Dr. Kane came to the conclusion that this coast of Greenland faced to the north. His longitude here was $78^{\circ} 41'$ west. After sixteen miles of foot journey, the company reached a great headland, to which they gave the name of Thackeray. Eight miles farther on a similar eminence attracted their attention, to which they applied the epithet of Hawkes. The table-lands here

were twelve hundred feet high. The party continued their difficult and dangerous journey until they reached some lofty headlands, where they determined to terminate their excursion. These reached an altitude of eleven hundred feet, and overlooked an expanse extending beyond the eightieth parallel of latitude. The view from this elevation was marked by every element of gloomy and cheerless magnificence. On



DR. E. K. KANE.

the left, the western shore of the sound stretched away toward the northern pole. To the right, a rugged and rolling country appeared, which ended in the Great Humboldt Glacier. Toward the northeast, the projecting headland called Cape Andrew Jackson appeared, and the vast area between was a sea of solid ice. Farther still, a sea of icebergs presented their rugged and unseemly bulks to the eye of the observer.

Having carefully examined the whole country as far as his

glasses would reach, Dr. Kane determined to return to the Advance. Winter was now rapidly approaching, and it was necessary to select some appropriate spot in which the crew and the vessel might pass its long, gloomy and dangerous interval. For various reasons, Dr. Kane resolved to remain where he then was. He had arrived at the conclusion that Rensselaer Harbor would be the most desirable winter-quarters, and on the 10th of September they commenced the labors necessary to render their position tenable and safe. They removed the contents of the hold of the vessel to a store-house which they prepared on Butter Island. A deck-house was built on the vessel, in which the different qualities of ventilation, warmth, dryness, room and comfort were sought to the utmost possible extent. A site for the observatory was selected. Stones were hauled over the ice on sledges for its erection. Its location was on a rocky inlet about a hundred yards from the vessel, which they named Fern Rock. Preparations were also made preparatory to the work of establishing provision depots on the coast of Greenland. The advantage of these provision depots will appear from the fact that by their assistance expeditions of search could afterward be conducted with the use of sledges and dogs. The provisions for the latter, if taken on the journeys themselves, form so heavy a load as seriously to embarrass the movements of the travellers. But when they were released from this labor these dogs conveyed the sledges and their occupants on long journeys successfully, and with great rapidity, on their tours of examination.

On the 20th of September the first party organized to establish provision depots was sent out. It consisted of seven men. A sledge thirteen feet in length, called the Faith, was filled with pemmican, and was drawn by those attached to it by means of track-ropes, termed rue-raddies, which were passed around the shoulder and under the arms. The intended location of this depot was sixty miles from the brig, on the Greenland coast.

The life of the party which remained in the vessel was not devoid of incident and interest. By the 10th of October the party which had been sent to establish the first depot of provisions had been absent twenty days, and their return was anxiously expected. Dr. Kane at length determined to start out in search of them. He travelled with one companion on

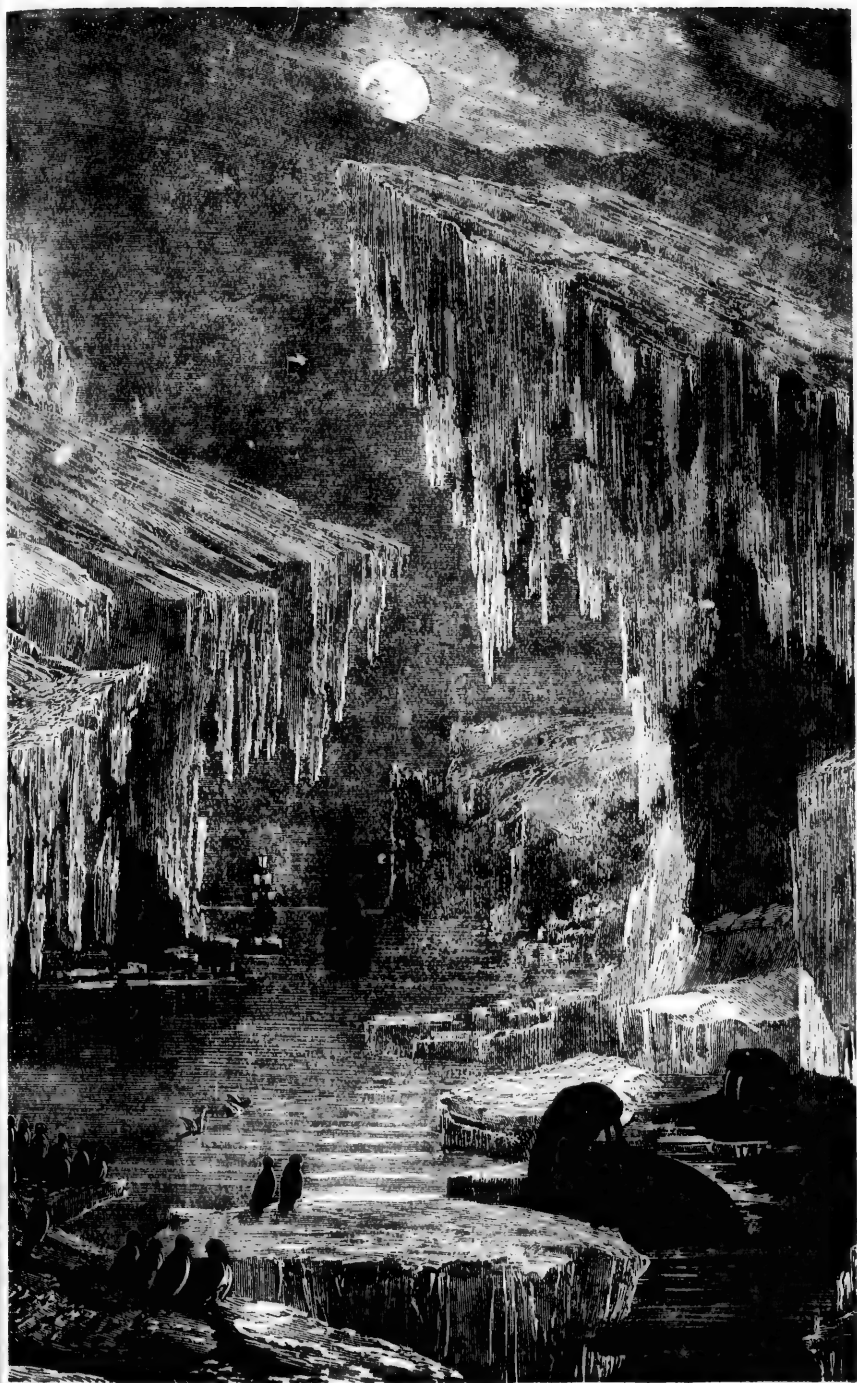
a sledge drawn by four Esquimau dogs. He averaged twenty miles per day with this singular team. On the 15th, several hours before sunrise, he perceived on the distant and snowy waste a dark object which seemed to move. It proved to be the returning depot party. They had travelled at the rate of eighteen miles per day, and had been twenty-eight days engaged in their laborious expedition. Some of their limbs had been frozen, and they had met with other mishaps, though none were of a very serious nature, and they had accomplished the purpose for which they had been sent out. The greeting which ensued on their return to the ship was hearty on both sides. They had made the first deposit of provision at Cape Russell. Thirty miles farther on they left about a hundred and ten pounds of pemmican and beef, about thirty pounds of a mixture of pemmican and meal, and a bag of bread. On the 10th of October they made their third and last deposit on an island called James McGary, after the second officer of the expedition. Here they erected a cairn and buried six hundred and seventy pounds of pemmican and forty of meat, biscuit, with other items, making in all eight hundred pounds.

By the 7th of November, 1853, the darkness of an Arctic winter began to settle down upon them. It was necessary to keep the lamps lit constantly. In spite of the intense cold, Dr. Kane continued to make his magnetic observations in the observatory. When the thermometer stood at forty-nine degrees below zero, and even at sixty-four degrees below zero, he still effected his astronomical investigations and calculations.

On the 21st of January the first traces of the returning light became visible. Its approach was indicated by a beautiful orange tint, which flushed the distant southern horizon. But still the darkness seemed to be eternal and unvarying. The continued absence of light appeared to affect the health of the party as much as the excessive rigor of the cold. By the 21st of February the sun's rays became clearly visible, and, when March arrived, it brought with it the almost perpetual day which alternately takes the place in the Arctic realms of almost perpetual night.

By the 18th of March the spring tides began to break and move the massive ice which still bound the Arctic Sea. The ice commenced to grind and crush, the water to dash to and fro, and the vessel to rise and descend in a range of seven-





THE EREBUS AND THE TERROR.

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teen feet per day. On the 20th a depot party was sent out preparatory to the commencement of the operations of the summer. The necessary preparations for inland trips and researches were made, sledges and accoutrements were contrived, and moccasins were fabricated. While these labors occupied their attention, a portion of the depot party suddenly



KANE AND HIS COMPANIONS.

reappeared at the vessel. They brought back a terrible report. They had left four of their number lying on the ice frozen and disabled, and they had returned a great distance to obtain instant relief.

Not a moment was to be lost. Ohlsen, the only one of the returned party who seemed able to give any information, was wrapped up in buffalo robes and placed upon a sledge. Nine

men started out to the rescue. The cold was intense, ranging seventy-eight degrees below the freezing-point. The instant the party ceased to move they would have been frozen to death. Violent exercise alone kept them alive. When they ventured to apply snow to their lips to slake their thirst, it burnt like caustic, and blood immediately followed. Some of the men were seized with trembling fits and some with attacks of short breath. Dr. Kane himself fainted twice upon the snow under the intense cold.

After a laborious and dangerous journey of twenty-one hours, the lost party were discovered. They were nearly forty miles distant from the brig. Their condition was perilous in the extreme, and the succor did not come a moment too soon. But the rescuers were scarcely better off than the rescued. They were compelled to drag a load of nine hundred pounds upon the sledge, and during their return trip the whole party were in imminent danger of being frozen to death. They could with the utmost difficulty resist the disposition to sleep, which would have immediately sealed their fate. After a fearful journey of several days, the party regained the brig; but the sufferings of that terrible occasion were almost beyond the power of imagination. They had travelled about ninety miles, and most of the men had become temporarily delirious, nearly all were frozen in some portions of their bodies, and two of them ultimately died in consequence of their exposure.

On the 27th of April, the time having arrived to continue his researches both after Sir John Franklin and in Arctic discovery, Dr. Kane determined to resume his expedition. He resolved now to follow the ice-belt to the Great Glacier of Humboldt, and thence to stretch along the face of the glacier toward the west of north and make an attempt to cross the ice to the American side of the channel. The object of this bold venture was to attain the utmost limit of the shore of Greenland, to measure the waste which extended between it and the unknown west, and thus to reveal, if possible, some of the mysteries which surrounded the North Pole. The journey was immediately commenced. After many adventures and sufferings, the Great Glacier of Humboldt was reached.

Dr. Kane now determined to organize a double party, in order to ascertain whether a channel or any form of outlet existed to the northern extremity of the coast of Greenland

He was convinced of the existence of such a channel from the movements of the icebergs, from the physical character of the tides; as well as from certain and uniform analogies of physical geography.

On the 3d of June one of the parties of exploration set out from the brig. They had a large sledge thirteen feet long. They aimed directly for the glacier-barrier on the Greenland side. Their orders were to attempt to scale the ice and examine the interior of the great *mer-de-glace*.

On the 27th of June one of the parties, directed by McGary and Bonsall, returned to the brig. Several of them had become nearly blind. After twelve days' travel, they had reached the Great Glacier. They found the depot of provisions, which had been deposited the previous season, destroyed by the bears. An alcohol cask strongly bound in iron was dashed into fragments, and a tin liquor can was mashed and twisted into a ball. This party of explorers had found it impossible to scale the Great Glacier, and returned to the brig without having effected any results of importance.

The other party, which had been placed under the guidance of Mr. Morton, left the vessel on the 4th of June. On the 15th they reached the foot of the Great Glacier. They steered northward, keeping parallel with the glacier, and from five to seven miles distant from it. The thickness of the ice over which they journeyed was found to be seven feet five inches. They travelled frequently with the snow up to their knees. When they had reached Peabody Bay they encountered the bergs, whose surface was fresh and glassy. Some of these were rectangular in shape and some were square, and their length varied from a quarter of a mile to a mile. The task of travelling over these bergs was full of difficulty and danger. At length they made their way to the ice beyond.

On the 19th of June, having encamped, Morton ascended a high berg in order to examine their future route and survey the surrounding desolation. From this point he beheld an extensive plain which stretched away toward the north, which proved to be the Great Glacier of Humboldt. From this point the advance of the party was perilous. They were frequently arrested by wide and deep fissures in the ice. Some of these chasms were four feet wide, and contained water at the bottom. From this point they beheld the distant northern shore, termed the "West Land."

At length, by the 21st of June, the party reached a point opposite the termination of the Great Glacier. It appeared to be mixed with earth and rocks. Travelling on they reached at length the head of Kennedy Channel, and saw beyond that the open water. Passing in their route a cape, they called it Cape Andrew Jackson. Here they found good smooth ice; for during the last few days they had passed over rotten ice, which not unfrequently threatened to break beneath them. Having entered the curve of a bay, they named it after Robert Morris, the great financier of the revolution.

Kennedy Channel here grew narrower, but afterward it widened again. Broken ice in large masses was floating in it; but there were passages fifteen miles in width which remained perfectly clear. Six miles inward from the channel mountains rose to the view. On the 22d of June they encamped, after having travelled forty-eight miles in a direct line. They could plainly see the opposite shore, which appeared precipitous and surmounted with sugar-loaf-shaped mountains. At this part of their journey they encountered a polar bear with her cub. A desperate fight ensued, in which the singular instincts of nature were strikingly illustrated by the desperate efforts made by the poor brute to protect her helpless offspring, which were slain. A shallow bay covered with ice was then crossed. They passed several islands which lay in the channel, which they named after Sir John Franklin and Captain Crozier. The cliffs which here constituted the shore of the channel were very high, towering at least two thousand feet above its surface. The party attempted to ascend these cliffs, but found it impossible to mount more than a few hundred feet. They here encountered a cape, and the party desired to pass around it in order to ascertain whether there lay any unknown land beyond it. But they found it impossible to advance. This then was the utmost limit and termination of their journey toward the Pole. Mr. Morton ascended an eminence here, and carefully scrutinized the aspects of nature all around him. Six degrees toward the west of north he observed a lofty peak, truncated in its form, and about three thousand feet in height. This elevation is named Mount Edward Parry, after the great pioneer of Arctic adventure, and is the most extreme northern point of land known to exist upon the globe. From the position which Mr. Morton had attained he beheld toward the north,





ARCTIC SCENE—KILLED WHILE DEFENDING HER YOUNG.

from an elevation of four hundred feet, a boundless waste of waters stretching away toward the Pole. Not a particle of ice encumbered its surface. Here was a fluid sea, in the midst of whole continents of ice, and that sea seemed to wash the Pole itself. The eye of the explorer surveyed at least forty miles of uninterrupted water in a northern direction. The point thus reached in this exploring expedition was about five hundred miles distant from the Pole. Had the party been able to convey thither a boat, they might have embarked upon the bright and placid waters of that lonely ocean. But having been able to make this journey only with the sledge, further explorations were of course impossible. The most remarkable development connected with these discoveries was, that the temperature was here found to be much more moderate than it was farther south. Marine birds sailed through the heavens. Rippling waves followed each other on the surface of the deep. A few stunted flowers grew over the barren and rocky shore. The inference which may be drawn from these and other facts is, that this open sea, termed the Polar Basin, stretches to the Pole itself, or at least continues a great distance until its course is interrupted by other projections of the earth.

The several parties which had been sent forth by Dr. Kane to explore the regions just described having returned, the season of Arctic travel had nearly terminated, and the members of the expedition were about to relapse into winter-quarters with their usual darkness, monotony, and gloom. But before resigning themselves entirely to this unwelcome seclusion, Dr. Kane resolved to make an effort to reach Beechey Island. Accordingly Dr. Kane manned his boat, called the *Forlorn Hope*, which was twenty-three feet long, and six feet and a half beam. The necessary amount of provisions were placed on board and the bold venture was undertaken. Sometimes the boat was navigated through the unfrozen channels of water which intervened between the floes of ice; at others she was placed on a large sledge called the *Faith*, and thus transported over the frozen wastes.

This party approached Littleton Island, which had been visited by Captain Inglefield. They here obtained a vast quantity of eider ducks. They then passed Flagstaff Point and Combermere Cape. Then came Cape Isabella and Cape Frederick VII. On the 23d of July they reached Hakluyt Island,

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and thence they steered for Cary Islands. But on the 31st of July, when they had reached a point but ten miles distant from Cape Parry, their further progress was absolutely stopped. A solid mass of ice lay before them on the sea, extending as far as the eye could reach. This barrier was composed of the vast seas of ice which had drifted through Jones' Sound on the west and those of Murchison's on the east. The adventurers were now compelled to retrace their way. About the 1st of August they regained the brig without having met with any accident, but also without having succeeded in attaining the object of their excursion. They found the *Advance* just as tightly wedged into the ice as it had been during the preceding eleven months, with no hope of getting her released. Two important questions now demanded their attention. The first was how they were to pass this, their second winter, in the Arctic regions, and how they were to make their escape in the ensuing spring.

The prospect of a second winter amid the eternal snows and ice of the Polar Circle was not inviting to the adventurers. A portion of them felt convinced of the practicability of an immediate escape to the south. On the 24th of August Dr. Kane summoned all hands together and clearly stated to them the aspects of the case. He advised that all should remain by the brig till the next spring, although he declared that those who wished to return could make the attempt. Eight men concluded to remain, and nine of them resolved that, rather than endure the miseries of a second winter near the Pole, they would run the risks of an instant attempt to escape. This resolution they made immediate preparations to execute. A full share of the remaining provisions was measured out to them, they were assured of a welcome reception if they chose to return, and they started forth on August 28th from the brig. One of this party returned to the vessel in a few days; the rest wandered for many months and endured much misery and exposure before they rejoined their wiser comrades in the brig.

Dr. Kane and the eight men who remained with him immediately began to prepare for the horrors of the ensuing winter. They gathered a large amount of moss, with which they lined and padded the quarter-deck. This expedient rendered their cabin impervious to the changes and the extreme severity of the atmosphere. They stripped off the outer-deck plank-

ing of the brig for the purpose of firewood. The chief necessity of the explorers was fresh meat, to guard them against the scurvy. To obtain this food, frequent excursions were made for the purpose of capturing seals. On one of these occasions Dr. Kane narrowly escaped a watery grave. He was twelve miles' distance from the brig with a single attendant. The ice broke beneath their sledge and they were precipitated into the water. After great exertions and amid extreme danger they succeeded in regaining ice sufficiently strong to bear their weight. They lost their sledge, tent, kayak, guns, and snow-shoes.

They waited patiently for the time to arrive when they could commence the necessary preparations for the journey of 1,300 miles which they would undertake in the spring. The vessel would evidently remain so firmly fixed in an ocean of ice that its removal would be utterly impossible. Their return must be effected with the combined use of sledges and boats. Yet, before commencing a final retreat, Dr. Kane resolved to attempt once more a northern excursion, hoping that it might result in some useful discovery connected with the object of the expedition.

The region which was yet to be explored was the farther shores beyond Kennedy Channel. The aid of the dogs was indispensable to the accomplishment of this task, and there were but four left out of the sixty-two, which composed their stock when they left Newfoundland. An arrangement was, however, made with Kalutunah, one of the wandering Esquimaux whom they knew, for the use of his dogs and three sledges. Thus reinforced, Dr. Kane, accompanied by several experienced Esquimaux travellers, commenced his journey. In two hours they reached a lofty berg fifteen miles north of the brig. The outside channel seemed filled with squeezed ice, and on the frozen plain beyond the bergs appeared to be much distorted.

Having returned to the brig, Dr. Kane resumed his preparations for final departure. Frozen fast as she was in the ice, there was no possibility of removing her. The only possible means of escape was by the combined use of boats and sledges. The party went to work industriously in the manufacture of clothing suitable to the journey. Canvas moccasins were made for each of the party, and a surplus supply of three dozen was added to the stock.

The means of conveyance which were to carry the company on this long and weary journey, and which were to be carried by them in a great measure, consisted of three boats. These had all suffered very materially from exposure to the ice and the Arctic storms, and were scarcely seaworthy. They were strengthened and tinkered in every possible way by oak bottom pieces and by wash-boards, which protected the gunwales and gave them greater depth. A housing of canvas was stretched upon a ridge line, which was suspended by stanchions, and which were fastened over the sides of the boats to jack-stays. Each boat had a single mast, and it was so arranged that it could be easily unshipped and carried alongside the boat. The boats were mounted on sledges. The provisions were stored carefully under the thwarts. The boats were to be drawn by the men with rue-raddies, or straps, which passed over the shoulder and were attached by a long trace to the sledge. The philosophical instruments were carefully boxed and padded and placed in the stern-sheets of one of the boats. Spy-glasses and small instruments the travellers carried on their persons. The powder and shot, which now became of infinite value to them, were distributed in bags and tin canisters. The percussion caps, the most valuable of all, Dr. Kane himself took charge of and reserved.

Having made all the preparations which were possible under the circumstances of the case, Dr. Kane announced to his crew that he appointed the 17th of May as the day of their final departure from the brig. Each man was allowed to select and retain eight pounds of personal effects. He was determined to commence this memorable journey on the day appointed, at all hazards. At length the day preceding that of departure arrived. The boats were removed from the brig and placed upon the ice. This process seemed to revive to some degree the desponding spirits of the men. The provisions were then conveyed into them, and other necessary transfers were made. After some hours of active operations, the whole of their task was completed, and the men returned on board the brig in order to spend their last night in that familiar shelter. After supper they retired to rest in order to recruit their energies for the toils which were to commence on the ensuing day, upon the final success of which their future existence depended.

At length the wished-for moment arrived when the weary

adventurers were to take their last farewell of the vessel which had been associated with them in so many vicissitudes and dangers. Thirteen hundred miles of ice and water lay between their present position and the shores of North Greenland.

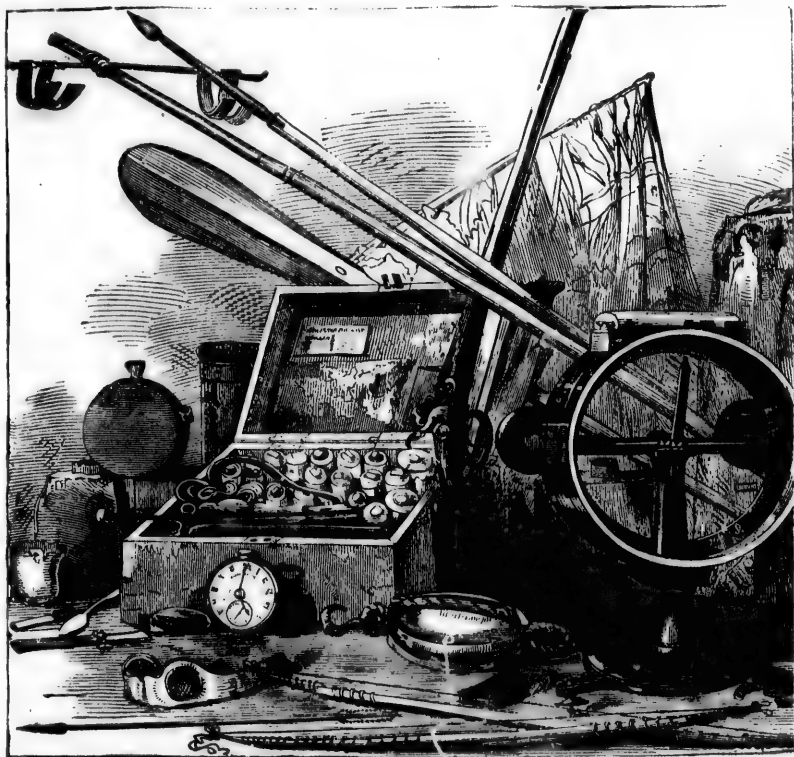
The whole return party consisted of seventeen persons, including Dr. Kane. Four of these were sick and unable to move. The rest were divided into two companies and appropriated to the several boats. Dr. Kane took charge of the dog-team, which was to be used for the purpose of conveying provisions from the vessel to the crew during the first few days of their journey. To the boat called Faith, McGary, Ohlsen, Bonsall, Petersen and Hickey were assigned. To the Hope, Morton, Sontag, Riley, Blake and Godfrey were detailed.

The first stage of the journey was to a spot called Anoatok, which had been a halting-place in their winter journeys. It was a single hut, composed of rude and heavy stones, and resembled a cave more than it did a house. Strange to say, this bleak and forlorn corner of that frozen hemisphere, the gloomiest and most detestable on the whole face of the globe, bore a name which was imposed by the least poetical of human beings, the Esquimaux, which was not devoid of beauty; for Anoatok in the jargon of the shivering natives means "the wind-loved spot." It was perched on the extreme point of a rocky promontory, and commanded a wide view of the icy straits, both toward the north and south.

Dr. Kane had exerted himself to repair the hut, and make it fit to shelter the sick. He had added a door to its broken outlet, and had introduced a stove and stove-pipe. Other improvements had been made. A solitary pane of glass, which once had faced a daguerreotype, was inserted in the door, to give a scanty light. The provisions which had been removed to this place were eight hundred pounds in weight. Seven hundred pounds still remained in the brig, to be removed by successive journeys of the dog-team. The services of these six dogs were indeed invaluable. In addition to all their previous journeys, they carried Dr. Kane to and fro, with a well-burdened sledge, nearly eight hundred miles during the first two weeks after they left the brig, being an average of fifty-seven miles per day.

So feeble and reduced were the parties who dragged the

two boats, that they advanced but a mile a day, and on the 24th had only made seven miles. The halts were regulated entirely by the condition of the men, who required longer rest at some periods than at others. The thermometer ranged below zero, and the men slept at night in the boats, protected by their canvas coverings. Had it not been for the shelter which the hut at Anoatok afforded, the four sick men—Good-



RELICS BROUGHT BACK BY THE FRANKLIN EXPEDITION.

fellow, Wilson, Whipple, and Stephenson—they must have perished. At the time of their removal into it, they were so drawn up with the scurvy that they were wholly unable to move. Yet their delay in this hut was extremely gloomy; for it lasted from the time that they were removed from the brig, until they were carried forward by the sledge to the boats, which had been dragged by their respective crews in advance

of them. During this interval they were carefully fed and attended by Dr. Kane.

Dr. Kane's visits to the brig from time to time, in order to obtain supplies of provisions, were full of interest to him. On the first of these he found the vessel already inhabited by an old raven, which had often been seen hovering around, and whom they had called Magog. The fire was lighted in the galley, the pork was melted, large batches of bread were baked, dried apples were stewed, and then the sledge was made ready to return with the load. Such was usually the routine of Dr. Kane's lonely visits to the brig. After the first of these visits, when he returned to the "wind-loved spot," Anoatok, with his sledge, he found that the sick who still remained there had exhausted their provisions; that their single lamp had gone out; that the snow-drifts had forced their way in at the door, so that it could not be shut; that the wind was blowing furiously through the open tenement; and that the thermometer ranged only thirteen degrees above zero. The invalids were disheartened and hungry. A fire was built with tarred rope; a porridge was prepared for them out of meat biscuit and pea-soup; the door was fastened up; a dripping slab of fat pork was suspended over their lamp-wick; and then all turned into their sleeping bags, after a hearty though not very savory meal. So overcome were they all with exposure and weakness, that they slept until after all their watches had run down.

Dr. Kane then hurried forward to the sledge party, who had by that time reached Ten Mile Ravine. They were struggling with the deep snows, were overwhelmed with fatigue, and were somewhat disheartened. Although their feet were much swollen, they had toiled that day for fourteen hours. Some were suffering from snow-blindness, and were scarcely able to work at the drag-ropes. In spite of all their toils and sufferings, morning and evening prayers were constantly read by the adventurers. Meanwhile the sledge party advanced slowly toward the south. On the 28th Dr. Kane paid his last visit to the brig. He was compelled to leave behind his collections in natural history, his library, and some of his instruments, such as his theodolite and chart-box, the useless daguerreotypes, and other companions and mementos of Arctic toil and suffering. Then he mounted his sledge; gave a last look at the blackened hull and spars of

the Advance; fiercely whipped up his dogs in a paroxysm of mournful gloom; and sped away for the last time over the snowy waste which had been associated with so many recollections. Thus was left behind at last in its frozen bed the vessel which had been connected with two Arctic expeditions, one of which is the most remarkable on record; and there, doubtless, she remains, an unseen monument of human enterprise, benevolence, and endurance.

From Anoatok Dr. Kane's next labor was to remove the provisions and men further on in their route. A friendly Esquimau, named Metek, was sent forward to the next station, with two bags of bread-dust, each weighing ninety pounds. The next station was Etah Bay. About midnight Dr. Kane approached that vicinity. The sun was low in the heavens, and the air around was marked by that peculiar stillness which accompanies the great solitudes of nature. While feeling the oppressive weight of that silence, his ears were suddenly greeted by unexpected sounds of mirth and laughter. He had approached an encampment of the wandering Esquimaux, consisting of about thirty men, women, and children. The cause of their joy was the capture of innumerable birds, called Auks, which they were engaged in catching with nets. This was the spot which these birds mysteriously chose for the purpose of breeding from year to year; and the Esquimaux as regularly found their way thither in pursuit of them.

The travellers continued their weary march through the snow, dragging their boats after them. Sometimes, when the weather moderated—for it was summer—the sledges broke through. Six men on one occasion were thrown into the water, and the Hope was very nearly lost. Help came to them from the Esquimaux at Etah, who sent them the loan of their dogs, together with an additional supply of fresh provisions. The dogs were of infinite service in drawing one of the sledges, upon which the sick men were conveyed. At this period an accident deprived the expedition by death of one of its most useful members. While crossing a tide-hole, one of the runners of the Hope sledge broke through the ice. The energy and presence of mind of Christian Ohlsen alone saved her from being lost. By a prodigious effort he passed a capstan-bar under the sledge, and thus sustained its weight until it was dragged forward to firm ice. In doing this his footing gave way beneath him, and he thus was com-

pelled to strain himself. The effort ruined him. Some internal injury had been inflicted by the effort, and he died three days afterward. His body was sewed up in his own blankets, and carried in procession to the head of a little gorge to the east of Pekiutlik, where a grave was excavated in the frozen earth. There his body was deposited with a few simple and appropriate ceremonies. His name and age were inscribed by the commander on a strip of sheet lead; and ere his grave was filled by his comrades, the brief and touching memorial was laid upon his manly breast. A small mound was then erected with rocks and stones over his lonely resting-place; and there now sleep, in that cheerless and wintry tomb, the remains of Christian Ohlsen.

By the 6th of June the party reached Littleton Island. From a lofty height here of some eight hundred feet, Dr. Kane obtained his first view of the open water. His position at that time was $78^{\circ} 22' 1''$ latitude, and $74^{\circ} 10'$ longitude. So weary were the men of dragging the sledges over the snow and ice, that they wished to take the direct route to the water, upon which they were eager to embark with the boats. But the dangers of the plan proposed overruled their wishes, and the inland route, though longer, was selected. The wished-for water which greeted the eyes of the weary travellers was Hartstein Bay, and they welcomed it with emotions of rapture resembling those which, as Xenophon records, filled the minds and excited the enthusiasm of the ten thousand Greeks when, after their long and perilous march through Asia-Minor, and their escape from the myriads of Artaxerxes, they first beheld the distant waves of the sea whose billows lave the shores of their beloved Greece.

On the 16th of June the party reached the water. It was at the northern curve of the North Baffin Bay. On the 18th the travellers were surrounded by all the Esquimaux who had been assembled at Etah. They had come to bid the strangers farewell, whom they had served to the best of their ability at an earlier stage of their journey. They were indeed a miserable and forlorn race, though kindly and confiding in their dispositions. They received various presents and keepsakes from the travellers—such as knives, files, saws, and lumps of soap. They had been of great service in lending hand-sledges and dogs, in helping to carry baggage and the sick from one station to another, along their weary route; and

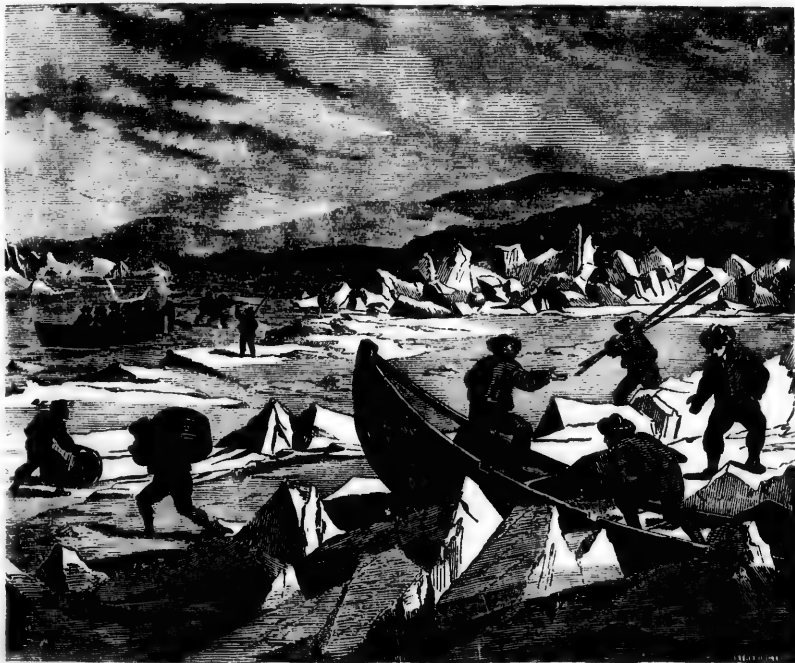
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they parted from the strangers—probably the last they were destined ever to behold in that repulsive clime—with feelings of regret which they did not conceal. Dr. Kane urged them to emigrate farther south, for there they could obtain more abundant food, and escape the perils of starvation which constantly surrounded them.

On the evening of Sunday, June 17th, the party hauled their boats through the hummocks, reached the open sea, and



OFF FOR THE OPEN SEA.

launched the frail craft upon its waters. But Eolus seemed determined not to permit them yet to embark, for he let loose his fiercest winds, which began to dash a heavy *wind-lipper* against the ice-floe, and obliged the party to remove their boats back with each new breakage of the ice. The goods which had been stacked upon the ice were conveyed farther inward to the distance of several hundred yards. The storm continued to rage, and to forbid them to venture on the treacherous element. At last Dr. Kane saw the necessity of

permitting the worn-out men to repose, and in order to do so securely, the boats were removed a mile from the water's edge. The sea tore up the ice to the very base of the berg to which they had fled for refuge, and the angry deep seemed like a vast cauldron, boiling with intense fury, while the immense fragments of ice crashed and rolled together with a sound resembling thunder.

At length the storm subsided, and the troubled sea became tranquil. The boats were again prepared for embarkation. On Tuesday, the 19th, Dr. Kane succeeded in getting the *Faith* afloat, and he was soon followed by the two other boats. Soon the wind freshened, and the mariners began their welcome progress homeward; but they had a long and perilous voyage before them of many hundred miles. At length they doubled Cape Alexander. They desired first to halt at Sutherland Island; but the ice-belt which hugged its shores was too steep to permit them to land. They then steered for Hakluyt Island, but had not proceeded far before the red boat swamped. The crew were compelled to swim to the other boats, and the former was with difficulty kept afloat, and dragged in tow by her comrades. Dr. Kane then fastened his boats to an old floe, and thus sheltered, the men obtained their second halt and rest. When they had become somewhat refreshed, they rowed for Hakluyt Island, at a point less repulsive and impracticable than the one attempted the day before. A spit to the southward gave them an opportunity to haul up the boats on the land-ice as the tide rose. From this the men dragged the boats to the rocks above and inland, and were thus secure. It snowed heavily during the ensuing night. A tent was prepared for the sick, and a few birds were luckily obtained to vary their stale diet of bread-dust and tallow.

On the next morning, the 22d, the snow-storm still continued to pelt them; but they pressed onward toward Northumberland Island, and reached it. They rowed their boats into a small inlet of open water, which conducted them to the beach directly beneath a hanging glacier, which towered sublimely into the heavens to the immense height of eleven hundred feet.

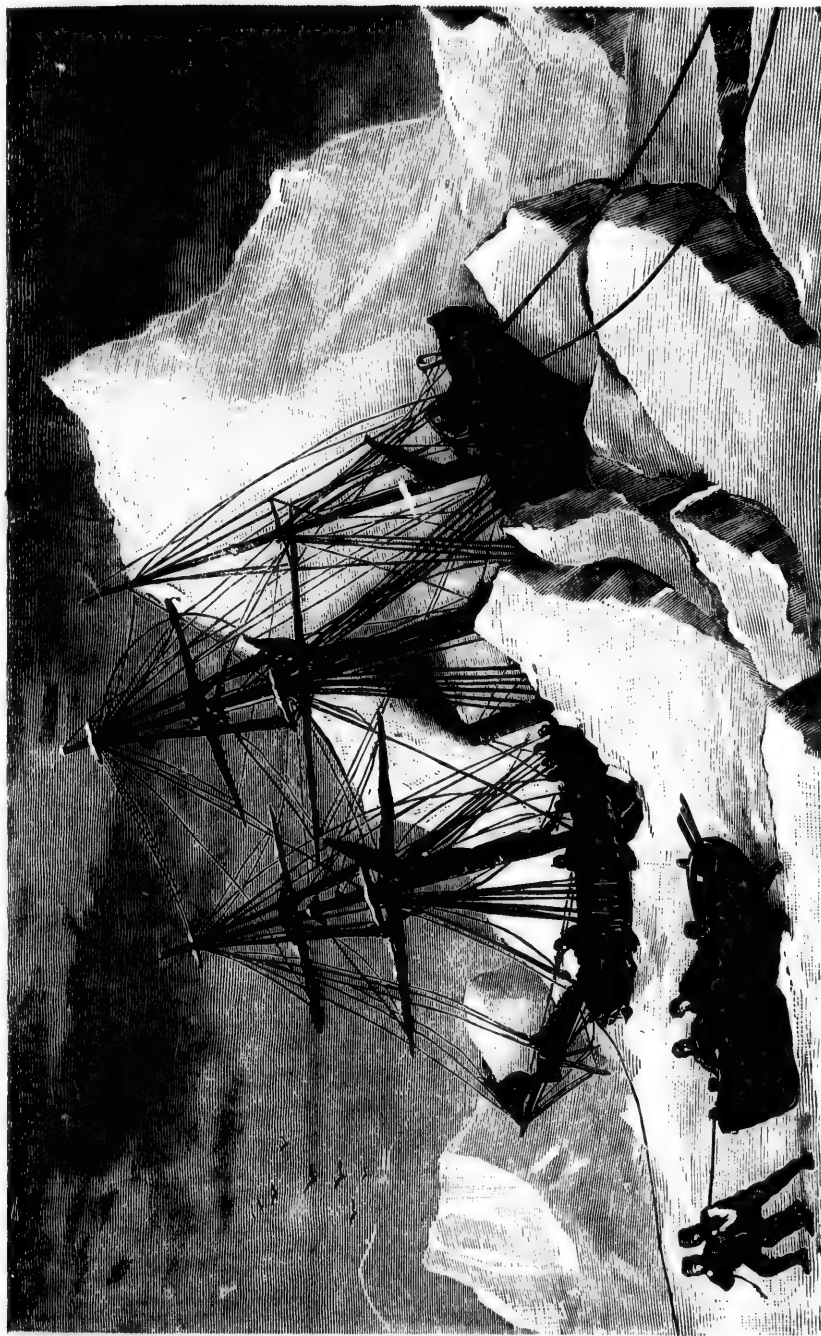
The next day they crossed Murchison Channel, and at night encamped at the base of Cape Parry. The day had been laboriously spent in tracking over the ice, and in sailing

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through tortuous leads. The day following they reached Fitz Clarence Rock; one of the most singular forms to be seen in that strange clime. It rises to an immense height from a vast field of ice, having the shape of an Egyptian pyramid surmounted by an obelisk. In more frequented waters it would be a valued landmark to the navigator.

Still they continued to toil onward from day to day. Their progress was satisfactory, though their labor was exhausting. Dr. Kane sometimes continued sixteen hours in succession at the helm. But now their allowance of food began to grow scanty. It was reduced to six ounces of bread-dust per day, and a lump of tallow about the size of a walnut. An occasional cup of tea was their only consolation. From this stage in their journey Dalrymple Rock became perceptible in the distance. But the physical strength of the men began to give way beneath their labors and their insufficient diet. At this crisis a gale struck them from the northwest, and a floe, one end of which having grounded on a tongue of ice about a mile to the northward of them, began to swing round toward the boats, and threaten to enclose and crush them. Soon the destruction of the surrounding ice threatened their own. For hundreds of yards on every side around them the ice was crumbled, crushed, and piled in irregular and fragmentary masses. The thunder of the confused ocean of frozen wrecks was overpowering. Suddenly the ice seemed to separate and form a channel; and in that channel, so unexpectedly opened before them, the men rowed the boats with the aid of their boat hooks, and escaped a danger which a moment before seemed inevitable and ruinous. Soon they found themselves in a lead of land-water, wide enough to give them rowing room, and they hastened on to the land, which loomed ahead. Reaching it, they eagerly sought a shelter. The Hope here stove her bottom, and lost part of her weatherboarding. The water broke over them, for the storm still continued. At length the tide rose high enough at three o'clock to enable them to scale the ice-cliff. They succeeded in pulling the boats into a deep and narrow gorge, which opened between the towering cliffs. The rocks seemed almost to close above their heads. An abrupt curve in the windings of this gorge placed a protecting rock behind them, which shielded them from the violence of the winds and waves. They had reached a haven of refuge which was

almost a cave; where they found a flock of eider ducks on which they feasted; and where for three days they reposed from the dangers and labors of their voyage. This retreat they fitly called Weary Man's Rest.

The fourth day of July having arrived, it was commemorated by the adventurers by a few diluted and moderate potations, such as their nearly exhausted whiskey flask permitted; and they then embarked and rowed industriously toward Wolstenholme Island. During some succeeding days, they continued slowly to progress toward the south, through the various lanes of water which opened between the belt-ice and the floe. By this time the constant collisions between the boats and the floating ice had rendered them quite unseaworthy. The ice had strained their bottom timbers, and constant baling was necessary. Their fresh meat had all been consumed, and the men were now reduced again to short rations of bread-dust.

On the 11th of July they approached Cape Dudley Digges; but their progress was suddenly stopped by an immense tongue of floe which extended out to sea for a prodigious distance. They forced their way into a lead of sludge, and attempted thus to advance. They found this to be impossible; and were glad to make their escape from it. Dr. Kane was at a loss how to proceed. He mounted an iceberg to reconnoitre the surrounding prospect. It was gloomy and repulsive in the extreme. They were in advance of the season; and he discovered that in those waters toward Cape York the floes had not yet broken up. They seemed to be surrounded in a *cul-de-sac*, with exhausted strength and food, and no possibility of escaping until the summer had broken open for them a pathway of escape.

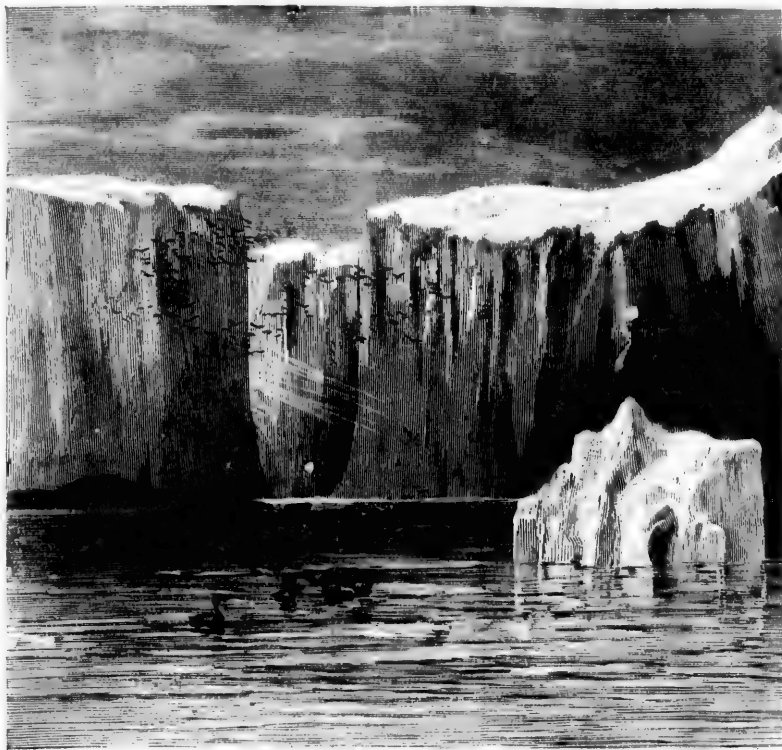
Sailing along they passed the Crimson Cliffs, so named by Sir John Ross. They continued thence to hug the shore. The weather now moderated; and their voyage assumed more agreeable and genial features. The men frequently landed, climbed up the steep cliffs and obtained abundant quantities of auks. Fires were kindled with the turf, and the feasts which ensued were relished with more than an ordinary appetite; and that also the more truly, because the travellers well knew that their good fortune, and their propitious seas and weather, would not long continue. They were now in 78° 20' north latitude.

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On the 1st of August they came within sight of the Devil's Thumb, and were no longer wanderers in unknown regions; but were within the limits of the district frequented by the whalers. Soon they reached the Duck Islands. At length they passed Cape Shackleton, and then steered for the shore of Greenland.

During two days longer they continued to follow the coast,



VIEW OF SANDERSON'S HOPE, NEAR UPERNAVIK, BAFFIN BAY.

sailing southward. At the end of this time they discerned the single mast of a small shallop, and heard words of mingled English and Danish from the sailors on board of her. They soon discerned that it was the Upernavik oil-boat on its way to Kingatok to obtain blubber. The annual ship had arrived from Copenhagen at Proven; and this was one of the boats which supplied her with a cargo of oil. From the

sailors on board the shallop, Dr. Kane first received information of the great events which, during his absence, had agitated the world to which he had been so long a stranger; how England and France had combined with the Turk to humble the haughty pride of the imperial Romanoff; and how vast armies were then engaged in mortal strife on the once quiet and fertile plains of the Crimea. For the first time he learned the importance which Sebastopol had acquired in the history and fate of the world, surrounded as it then was with a battling host of a hundred thousand men.

They rowed on. Soon Kasarsoak, the snow-capped summit of Sanderson's Hope, appeared to them, towering above the mists; and as they approached the welcome harbor of Upernavik, from which they had issued several years before in the gallant vessel they had now left behind them, they felt as only such men under such circumstances could feel. During eighty-four days they had lived in the open air, tossing in frail boats on the bosom of the angry, half-frozen deep. They were delivered from a thousand deaths, and arrived at last safely at Upernavik, where they were received with hospitality.

Dr. Kane resolved to embark his party in the Danish vessel the *Mariane*, which sailed on the 6th of September for the Shetland Islands. They took with them their little boat the *Faith*, which had accompanied them through so many adventures. They only retained their clothes and documents, of all they had once possessed on board the *Advance*. On the 11th they arrived at Godhaven, where they found their former friend, Mr. Olrik, the Danish Inspector of North Greenland.

Dr. Kane and his associates returned to New York in the squadron of Captain Hartstene, consisting of the United States bark *Release* and the United States steam-brig *Arctic*, which had sailed from New York in June, 1855, in search of him and his party. They arrived at New York on the 11th of October, 1855.

The results of his expedition comprise the survey and delineation of the north coast of Greenland to its termination by a great glacier; the survey of this glacier and its extension northward into the new land named Washington; the discovery and delineation of a large tract of land, forming the extension northward of the American continent, and a survey of the American continent.

CHAPTER V.

AMERICAN ARCTIC EXPEDITION.

Expedition of the United States Ship Vincennes under Commander John Rodgers—Petro-paulovski—Behring Strait—Wrangell Land.

WHILE Lieutenant Hartstene was nearing the port of New York with the rescued party of Dr. Kane on board the Release, the Vincennes, under Commander John Rodgers, was returning from a cruise in the Arctic Seas on the western side of the continent. The ship came into San Francisco October 15th, 1855, two days after the arrival of Kane at the Brooklyn navy-yard.

The explorations and surveys made on this cruise were in the prosecution of the original plans of the United States Surveying and Exploring Expedition which had left the United States, under Commander Cadwalader Ringgold, in the year 1853.

The expedition consisted of the sloop-of-war Vincennes, the screw steamer John Hancock, the brig Porpoise, the schooner J. Fenimore Cooper, and the store-ship J. P. Kennedy. Lieutenant John Rodgers was detached to command the Hancock.

The squadron sailed from Norfolk June 11th, 1853. The primary object of the expedition was the promotion of the great interests of commerce and navigation; special attention being also directed to the increasing importance of the whale fisheries in the neighborhood of Behring Strait. The thorough examination of that great outlet was expected, as well as that of the adjacent coasts of North America and Asia, including the Seas of Behring and Anadir, and the Aleutian archipelago, with the east coast of Kamtschatka. The commander was authorized to go as far north as he should think proper, and devote as much time to the complete performance of any part of the work as should be necessary; but was instructed also to take all occasions not incompatible with these high objects, for the extension of the boundaries of scientific research. In the following year a reorganization of the ex-

pedition became necessary, the failing health of Commander Ringgold requiring his return to the United States; the command devolved upon Lieutenant John Rodgers, the next in rank.

The Vincennes and Porpoise sailed from Hong-Kong on the 12th of September for a survey of the Bonin Isles, Ladrone, Loo-choo, and the islands west and south of Japan, and returned to Hong-Kong in February, 1855, with the exception of the brig Porpoise, which parted company from the Vincennes September 21st, 1854, in mid-channel between Formosa and China to the northward and westward of the Pescadores. The brig, with every soul on board, perished. She was to have met the Vincennes at the Bonin Isles, and Commander Rodgers waited for her there beyond the appointed time. As there were grounds for apprehension of her safety, since both the Vincennes and the Porpoise had struggled together with the storm of the date named, Commander Rodgers went in search of her, visiting the Loo-choo and other islands and places where it was thought possible she might have been driven by the gale; and afterward the Hancock and Cooper thoroughly explored the island of Formosa, but without the slightest intelligence of the ill-fated brig.

The following brief notices about the expedition of the Vincennes are derived from the log of the ship and letters of Commander Rodgers:

July 8th, 1855.—The Vincennes arrived at Avatcha Bay, Siberia, in which lies the port of Petropaulovski. The village presented a singular appearance, its houses, about one hundred in number, being built of logs hewn square, many of them having red roofs; the better class covered with sheet-iron, the red lead being probably designed as a protection from rust. The village is situated at the head of a land-locked basin, formed by a high ridge of land curving out and rounding from the main, and then running parallel to it. A low sand-spit forms a breakwater across the entrance. On the shoulder of the spit, and on the promontory of the ridge, were seen the ruins of batteries from which the guns had been removed.

A boat came off with a Mr. Case, an American resident, who reported the town deserted, and that the public property had been destroyed, and that of private persons wantonly in-

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jured by the French. On a visit by the officers of the Vincennes, the burned houses presented a mournful appearance, and the deserted mansion of the governor scarcely less of discomfort. This dwelling was of logs caulked with oakum, and lined with painted canvas; its heating had been from Russian stoves, which, as massive squares of brick-work, maintained a constant temperature. A stream of clear water, supplied from the melting snow of the hills, formed a small cascade in the garden. In the streets many dogs were wandering without masters, to die of starvation. In the calm of the evening the scenery was very fine, presenting from one point the wide waters of the bay, the close, calm harbor, the distant and majestic mountains, and the light-hued vegetation, waving with every zephyr. Violets and heartsease were gathered for home letters. During the absence of the officers the seine had been hauled, bringing up one hundred and forty salmon with trout; a king-salmon weighed sixty pounds; the lightest, ten pounds.

On the 9th an American ship with a cargo consigned to Petropaulovski arrived from New York *via* Valparaiso. On the 13th the commander of the Vincennes sent as a present to the governor of Siberia a silver-mounted Sharpe rifle with ammunition; the Vincennes ran out to sea, taking as an interpreter an old Cossack sixty-seven years of age.

On July 16th the Vincennes encountered thick weather, but without rain; at noon, when it lightened up, Behring Island was seen bearing southeast. From this date up to the close of the month, adverse easterly winds prevailed, with the exceptional calms accompanied by the usual fogs.

On August 1st Behring Straits were entered after passing between St. Lawrence Island and Cape Tchaplín in a thick fog without seeing land. The ship hauled in for Semíavine Straits on the Asiatic side, where the commander had determined to leave a party under Lieutenant Brooke to make astronomical and other observations. In the afternoon, land was suddenly seen close aboard, without the position of the ship being well known, as they had no observations. From the deck some mound-like structures, the huts of the Tchuktchis, were seen, with what appeared the framing of others—eight or ten whale-ribs set upon end close together. A large number of the men, with their women and children, crowded around the ship in their *baidars*, skin-boats; they were all

dressed in furs, generally with coats of deer-skin, and pantaloons of seal-skin, over which they wore looser frocks made of the intestines of whales or other sea animals. They were tall and had large heads; the flatness of their faces, relieved only by prominent cheekbones, making them appear singularly heavy. Their hair was shorn, except a broad ridge over the forehead. The women were not ugly, some of them quite pretty, particularly when they smiled; and when



WALRUS OF THE ICE-FIELDS.

asking for anything, they put on so winning an air and smiled so sweetly. The party made ready exchanges of walrus teeth, lances and harpoons made of the ivory of the moose, for needles, thread, silk and like articles; tobacco being chiefly desired. All could either smoke or chew, and for half a plug of the weed they willingly gave weapons which must have cost them weeks of patient labor. They inquired for grog, of which, however, very little was given to them.

The Vincennes entered the Arctic Sea August 11th. It was utterly impossible to expect to winter in a high latitude—the ship had but four months' provisions and fuel—and the commander was desirous to return to the work of the surveys at the earliest date consistent with the visiting to the land in about latitude 72° N., longitude 175° W.; with examining Herald Island, seen by the same ship, but not explored; and the endeavor to reach Wrangell Land.

On August 11th the ship encountered a stream of drift-timber, some of the trees of which were so large and numerous that she had frequently to alter her course of seven knots to avoid striking them. She ran over the tail of Herald Shoal, which had less than eighteen fathoms water, and on the 13th passed the island, which appeared dimly between the clouds as two small ones. The weather became foggy, and the ship stood for the north until she came to anchor in forty-two fathoms, in latitude $72^{\circ} 5' N.$, longitude $174^{\circ} 8' W.$ In a few hours the fog lifted, and a sudden change, peculiar to the northern regions, flashed across the scene; it was so clear that the horizon appeared without limit. No land or appearance of land could be seen from the royal yards. The water, as far as the eye could reach, was entirely free from ice, but the weather became again foggy. Commander Rodgers, having accomplished what he had proposed, and being assured that a longer exposure of his officers and crew could result in injury only, returned toward Herald Island. On the 24th of September the passage through the Aleutian chain was made by night through the Straits of Amoukta. This passage was found to be excellent, "the widest and probably the best through these seas." Nothing of special interest occurring on her return, October 13th, the Vincennes anchored in the harbor of San Francisco. The Hancock and the Fenimore Cooper arrived in port the day following.

CHAPTER VI.

EXPLORATIONS OF DR. ISAAC I. HAYES.

He visits Melville Bay—Winters at Port Foulke—Arctic Night described—Highest Point reached.

THE next American Arctic exploration on the northeastern coast was effected by Dr. Hayes, surgeon of the second Grinnell expedition.

The proposed route was again to be by way of Smith's Sound, and his objects were to complete the survey of the north coasts of Greenland and Grinnell Land, and to make further explorations towards the Pole, in order to verify the existence of the reported open Polar Sea. On the former voyage he had traced Grinnell Land beyond the eightieth parallel, and he now hoped to push a vessel into the ice-belt there, and thence transport a boat over it into the open water of the great basin which he hoped to find beyond.

The fore-and-aft-schooner *United States* sailed from Bokin on July 7th, 1860, and crossed the Arctic circle on the 30th of July. Dr. Hayes visited Pröven and Upernavik, where the ship's company was increased by the addition of six persons. On the 23d day of August Melville Bay was entered in a thick snow-storm. The expedition wintered at Port Foulke. Dr. Hayes thus describes in his journal on the 16th day of January, 1861, an Arctic night:

"Our eyes now turn wistfully to the south, eagerly watching for the tip of Aurora's chariot, as the fair goddess of the morning rises from the sea to drop a ray of gladness from her rosy fingers into this long-neglected world. It is almost a month since we passed the darkest day of winter, and it will be a long time yet before we have light; but it is time for us now to have at noontime a faint flush upon the horizon. A faint twilight flush mounting the southern sky to-day at the meridian hour, though barely perceptible, was a cheering sight to all. We feel that the veil of night is lifting, that the cloud

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"The people have exhausted their means of amusement; we long for the day and for work. Talk as you will of pluck and of manly amusement, this Arctic night is a severe ordeal. It



DR. ISAAC I. HAYES.

is a severe trial to the moral and the intellectual faculties. The cheering influences of the rising sun, which invite to labor; the soothing influences of the evening twilight, which invite to repose; the change from day to night and from night to day, which lightens the burden to the weary mind and the

aching body, is withdrawn; and, in the constant longing for light, the mind and body, weary with the changeless progress of the time, fail to find repose where all is rest. The grandeur of nature ceases to give delight to the dull sympathies; the heart longs for new associations, new objects, and new companionships; the dark and dreary solitude oppresses the understanding; the desolation which reigns everywhere haunts the imagination; the silence—dark, dreary, and profound—becomes a terror. I have gone out into the Arctic night, and viewed nature in her varied aspects. I have rejoiced with her in her strength, and communed with her in repose. I have walked abroad in the darkness, when the winds were roaring through the hills and crashing over the plains. I have wandered far out upon the frozen sea, and listened to the voice of the icebergs, bewailing their imprisonment; along the glacier, where forms and falls the avalanche; up on the hill-top, where the drifting snow, coursing its way over the rocks, sang its plaintive song; and again I have wandered away to the distant valley, where all these sounds were hushed, and the air was still and solemn as the tomb.

“And here it is that the true spirit of the Arctic night is revealed, where its wonders are unloosed, to sport and play with the mind’s vain imaginings. The heavens above and the earth beneath reveal only an endless and fathomless quiet; there is nowhere evidence of life or motion; I stand alone amidst the mighty hills; their tall crests climb upward, and are lost in the gray vault of the skies; their dark cliffs, standing against their slopes of white, are the steps of a vast amphitheatre. The mind, finding no rest on their bald summits, wanders into space; the moon, weary with long vigil, sinks to her repose; the Pleiades no longer breathe their sweet influences; Cassiopeia and Andromeda and Orion, and all the infinite host of the unnumbered constellations, fail to infuse one spark of joy into this dead atmosphere; they have lost all their tenderness, and are cold and pulseless. The eye leaves them and returns to earth, and the trembling ear awaits something that will break the oppressive stillness. But no footfall of living thing reaches it, no wild beast howls through the solitude. There is no cry of bird to enliven the scene; no tree among whose branches the winds can sigh and moan. The pulsations of my own heart are alone heard in the great void; and, as the blood courses through the

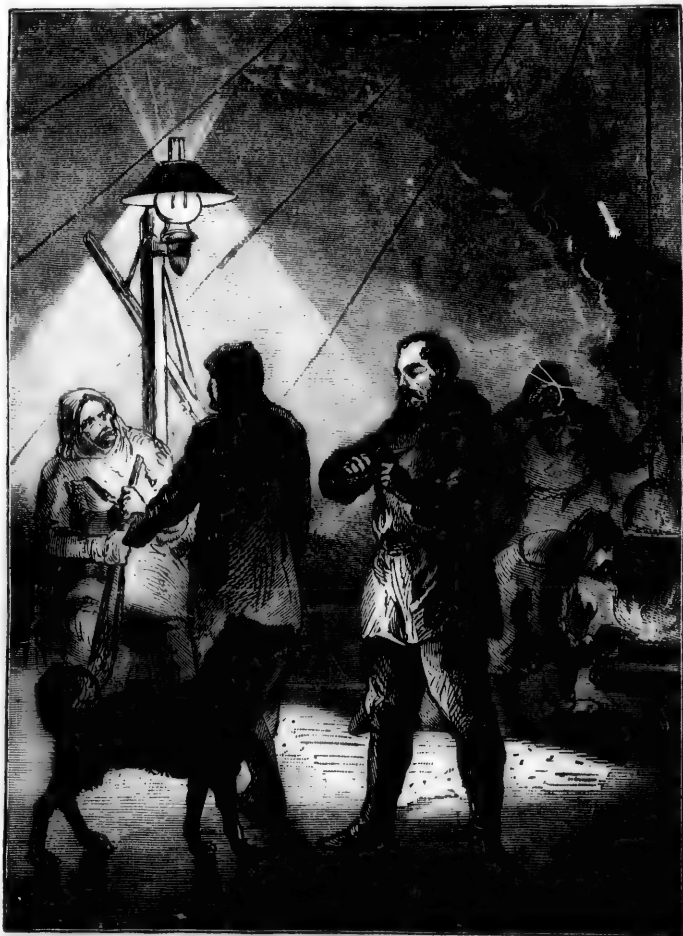
sensitive organization of the ear, I am oppressed as with discordant sounds. Silence has ceased to be negative; it has become endowed with positive attributes. I seem to hear and see and feel it. It stands forth as a frightful spectre, filling the mind with the overpowering consciousness of universal death—proclaiming the end of all things and heralding the everlasting future. Its presence is unendurable. I spring from the rock upon which I have been seated; I plant my feet heavily in the snow, to banish its awful presence, and the sound rolls through the night and drives away the phantom.

"I have seen no expression on the face of nature so filled with terror as the silence of the Arctic night."

In the early spring the Esquimaux replenished the dog-teams to the number of twenty. Several, however, died as before. With the rest a provision depot for the summer use was soon established, and on the 4th of April, 1861, Hayes, with twelve officers and men, started out on his principal and long journey to the North. His equipment consisted of a metallic life-boat, mounted on runners, with provisions for seven persons for five months, and for six persons and fourteen dogs for six weeks. He was, however, again compelled to keep to the eastern shore, and, consequently, encountered the same experience of ice-hummocks with which Kane had met; and finally finding it impossible to transport the boat brought out in the fond anticipation of pushing it out on the Polar waters, he sent it back with the main party, while he continued the journey with two companions only. But with these he reached the west coast by nearly the same track followed by him in 1854, corrected some errors of the chart made at that time, entered Kennedy Channel, and on the 16th of the month attained a point forty miles farther north than Kane's highest on the opposite shore. Returning in the same track he reached his vessel after an absence of fifty-nine days, and a journey of comings and goings of fourteen hundred miles. To the highest point reached he gave the name of Cape Lieber. To the north lay Lady Franklin Bay. In the far distance, north of Cape Beechey, a headland was seen to which he gave the name of Cape Union.

The schooner, having been prepared for sea, was broken out of the ice on the 10th of July, and sailed from her winter harbor on the 14th. After much difficulty and two trials she

reached the west coast ten miles below Cape Isabella. Continuing his voyage southward Dr. Hayes completed the survey of the eastern coast of North Baffin Bay, from Cape Alexander to Granville Bay; a survey made independently



THE TENT OF DR. I. I. HAYES.

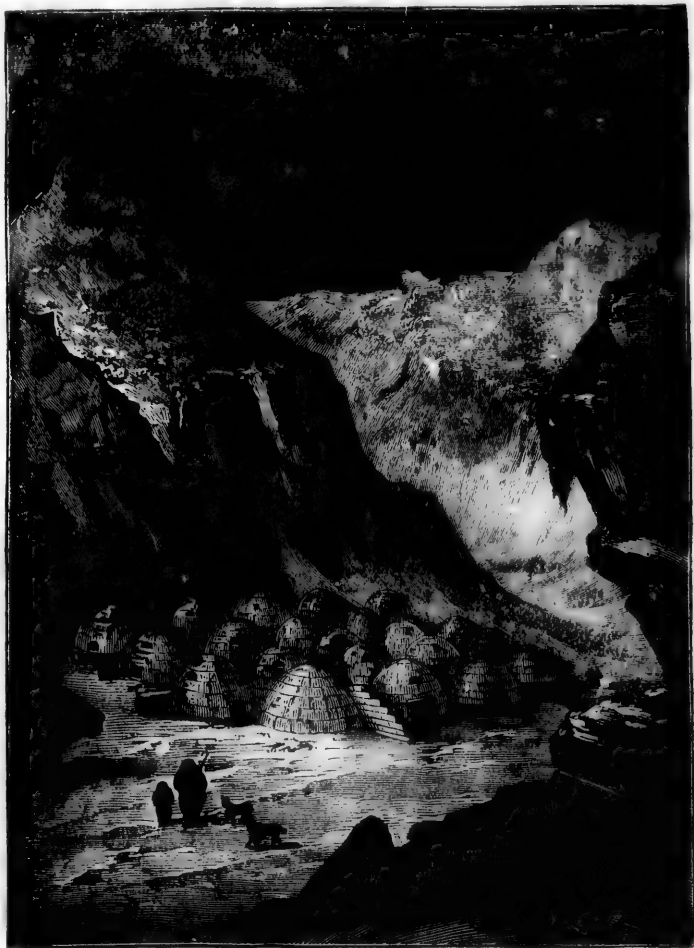
of the charts of his predecessors. The shore-line surveyed on the eastern side, a portion of which is new discovery, equalled about six hundred miles, and on the western side, between Clarence Head on the south and Cape Union on the north, about thirteen hundred miles.

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EXPLORATIONS OF ISAAC I. HAYES.

He entered Melville Bay, and after boring through the "pack" for one hundred and fifty miles entered the Southern Water, and reached Upernavik on the 14th of August, and Disco Island September 1st. The voyage from Godhaven



SNOW VILLAGE—IGLOO.

southward was very stormy. Off Halifax the ship received such injury as required her to put into port for repairs. Leaving this harbor, October 19th, Dr. Hayes arrived in Boston on the 23d, after an absence of fifteen months and thirteen days.

CHAPTER VII.

CHARLES FRANCIS HALL.

The Explorations of C. F. Hall—Limited Resources—Generous aid by Messrs. Grinnell, Williams and Haven—Buries his Native Companion Kud-la-go—Holsteinborg—Destruction of the Rescue and the Expedition Boat—Inland Excursions—Frobisher Strait or Bay—Hall's Second Arctic Expedition—Sailing of the Monticello—Winter-Quarters at Fort Hope—King William's Land.

FEW men have entered upon a great undertaking with less encouragement and means than did Charles Francis Hall, the son of a blacksmith, an American of humble birth, without influential friends or money of his own, to fit out an expedition to the Polar Seas. He left the port of New London, Conn., within a few weeks of the sailing of Dr. Hayes, without companions for his explorations.

The prevailing sympathy for the fate of Franklin had kindled in Mr. Hall an enthusiasm for the search and for Arctic exploration which failed him only with his life. Through the nine years from the issue of the instructions to Lieutenant DeHaven to the return of the British yacht *Fox*, under McClintock, he had steadily devoted every spare hour to the study of what might be done for the rescue. In February, 1860, he issued a circular in the nature of an appeal to his fellow-citizens for aid in his proposed undertaking, which was generously answered by Mr. Grinnell, of New York, and the firm of Williams and Haven, of New London; the latter offering to convey the proposed expedition and its outfit free of charge to Northumberland Inlet, and whenever desired to give the same free passage home in any of its ships.

On the 29th day of May, 1860, Hall left New London in the ship *George Henry*. His only companion was the Esquimau Kud-la-go, whom Captain Budington of the *George Henry* had brought to the United States on his voyage in the preceding autumn. His outfit consisted of one boat, one sledge, some twelve hundred pounds of pemmican and meat-biscuit, a small amount of ammunition, and a few nautical

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instruments and thermometers. The ship did not arrive at Holsteinborg before the 7th of July. Hall met with his first and serious loss in the death of Kud-la-go before entering the harbor. Apparently in good health when leaving New London, the native had contracted a severe disease whilst passing through the fogs on the Newfoundland banks, and rapidly failed in health. His last words were, *Teik-ko-seko? Teik-ko-seko?* (Do you see ice? Do you see ice?) This he incessantly asked, thinking he might be near his home. He died about three hundred miles from it, and was buried in the sea.

On July 30 the *George Henry* was within three miles of "Sanderson's Tower," on the west side of the entrance to



A WINTER EXPERIENCE IN THE ARCTIC REGION—CAPTAIN PHIPPS' SHIPS.

Northumberland Inlet; August 8th the barque reached her anchorage at Ookooler, the Esquimaux name for what has since been known as Cornelius Grinnell Bay.

Before entering the bay, a runaway boat's crew from the whaler *Ansell Gibbs*, of New Bedford, was hailed on their southward course home. They stated that on account of bad treatment they had deserted from the ship at Kingaite in Northumberland Sound, and had run the distance from that place, two hundred and fifty miles, in less than three days. Captain Buntington relieved their extreme hunger, and in pity for the necessities of the deserters furnished some supplies for their perilous voyage, which, according to information re-



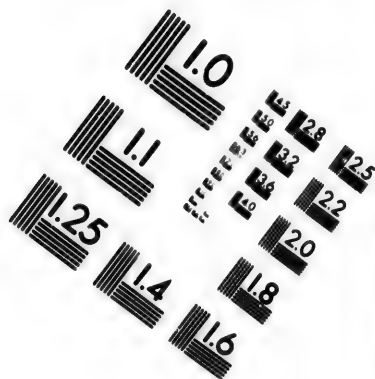
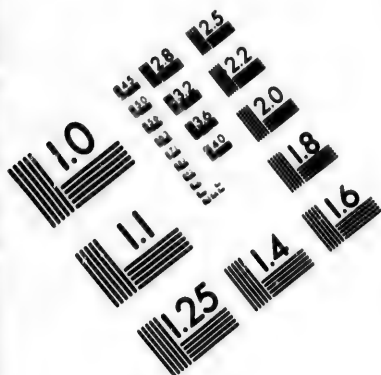
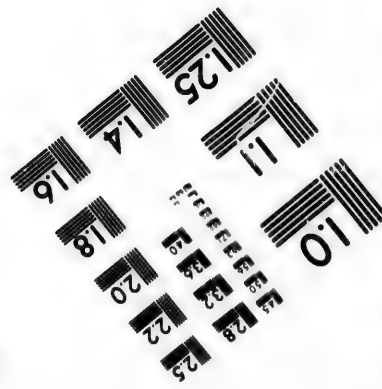
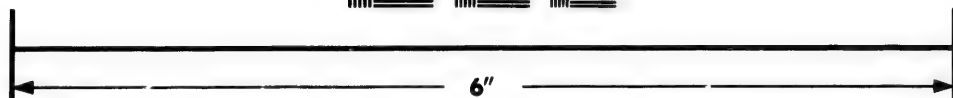
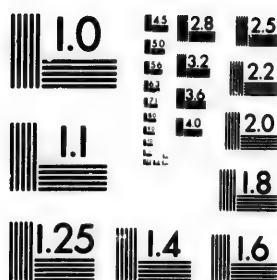


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ceived two years afterward, they succeeded in effecting to the Labrador coast.

The first impression made by the natives around the bay was of a favorable character, especially in reference to their good nature. In noting his impressions Hall quotes from the reviewer of an Arctic book a reference to the Esquimau race, as being "singular composite beings"—a link between Saxons and seals—hybrids putting the seals' bodies into their own, and then encasing their skins in the seals, thus walking to and fro, a compound formation. A transverse section would discover them to be stratified like a roly-poly pudding, only instead of jam and paste, if their layers were noted on a perpendicular scale, they would range after this fashion: first of all, seal, then biped-seal in the centre with biped, then seal again at the bottom. Yet, singularly enough, these savages are cheerful, and really seem to have great capacity for enjoyment. Though in the coldest and most uncomfortable dens of the earth, they are ever on the grin, whatever befalls them. When they see a white man and his knick-knacks, they grin. They grin when they rub their noses with snow, when they blow their fingers, when they lubricate their hides inside and out with the fat of the seal. The good-naturedness referred to here was indorsed by Hall from the outset of his acquaintance with the natives; their other good points as well as defects were, as would be expected, impressed upon him with differing experiences and judgments throughout his years of sojourn. Quite a number of the people frequented the barque; among them the wife of Kud-la-go, who had heard on shore of her husband's death, and whose tears flowed fast when she saw the treasures which the deceased had gathered in the States for her and his little child.

On the 16th the two ships sailed for Nu-gum-mi-uke, their intended winter-quarters. Before sailing two other whalers, the Black Eagle and the Georgianna, had come in from another whaling ground. The harbor entered by the George Henry was not easy of access, but safe; Hall gave it the new name of Cyrus W. Field Bay, which it retains.

On the 21st the Rescue was sent by the captain to examine the availability for a fishing-depot of an inlet on the other side of the bay, and Hall accompanied it, making his first visit to the scene of the landings of the voyagers under old Sir Martin Frobisher, three centuries before. Here he made

discoveries of value, and here he lost his expedition boat, the only means on which he could rely for the prosecution of his westward journeyings.

The gale which brought these disasters was a severe one. Three vessels, the Barque, the Rescue, and the whaler Georgianna were anchored near each other in the bay September 27th, when the storm began; it increased by 11 P. M. to a hurricane. The Rescue, after dragging for some hours, dashed upon the breakers, a total wreck; the Georgianna struck heavily on the lee shore.

Hall's boat was driven high upon the rocks, nothing being



A VISIT TO THE ESQUIMAUX.

afterward found of her except her stern-post; but before the howl of the tempest ended, he was asking of Captain Budington the loan of a whale-boat to replace his loss: he was unable to secure one.

With a party of Esquimaux he visited Captain Parker, of the True Love, an old whaler of forty-five years' Arctic experience, and, explaining to him his plans and the loss of his expedition boat, received the promise of one additional to the whale-boat which he hoped to get from the George Henry for his westward voyage. The party were piloted through a passage from which no opening to the ship could be seen by the woman *Nik-u-jar*, who, knowing every channel and inlet

within two hundred miles of the anchorage, and seated on the loggerhead of the boat, with her pretty infant in her hood at the back of her neck, steered directly to the spot. Unfortunately the *True Love*, a few days afterward, being driven from her anchorage by a gale, went off to sea, and Hall was thus disappointed both in the loan of the boat, and even in the opportunity of sending letters home.

His original plans were finally arrested, and his attention was given during the stay of the *Barque* only to the language and habits of the people, to observations of natural phenomena, and to the discoveries of the Frobisher remains, and the location of the old-attempted settlements under that explorer.

Within the month following the loss of the boat, the native, Ebierbing (afterward called Joe), with his wife, Too-koo-litoo (Hannah), came to the cabin of the whaler. Joe had recently piloted to the bay the *True Love* and the *Lady Celia*, through a channel more than one hundred and twenty miles long, behind a line of islands facing the sea. Too-koo-litoo at once impressed Hall with an expectation of valuable assistance from her, as she as well as her husband appeared to be intelligent, and spoke English quite fluently. They had acquired this from a residence of twenty months in England. Hannah promptly set herself to learning to read under Hall's teaching.

November 19th, the ice from the head of the bay began to bear down upon the ship, and by the 6th of the month following she was secured in winter-quarters. Mr. Hall, having now acquired some knowledge of the native language, and having the company of the two natives just named, with a third, Koodioo, a relative of a woman whom he had befriended when dying, he thought himself ready for the discomforts of an Arctic journey. His sledge was loaded for a team of ten dogs, with a fair outfit of clothing, provisions, and sleeping comforts; his telescope, sextant, thermometer, and marine glass; a rifle, with ammunition; a Bowditch nautical almanac, and other books. Too-koo-litoo at first led the way, tracking for the dogs, which Ebierbing managed well; but, on nearing the frozen waters of the ocean, where it was necessary to lower the sledge to the ice, the dogs were detached, while the woman, whip in hand, held on by the traces, which were from twenty to thirty feet long. The difficulty of the outgoing tide being overcome, the party, under the same

leader, again made some six miles over the ice, and finding good material for building a snow-house, encamped. The fitting up of the igloo—always the work of the igloo wife—was done by first placing the stone lamp in its proper position, trimming it, and setting over it a kettle of snow; then placing boards upon the snow-platforms for beds, and spreading over them the canvas, containing some pieces of a dry hrub, gathered for this purpose, and on this the *tuk-too*, or reindeer-skins; over the fire-lamp the wet clothing was hung, to be turned during the night by the wife.

The journey was resumed in the morning. The course was due north, but owing to the innumerable hummocks in the ice it was not direct, and the party only made five miles during the day. It was expected that the journey would be made in one day, but the obstacles were so great that the second night found them far away from their destination. To add to the complications a storm came up, and they had just secured shelter when it burst upon them in all its fury, in their ice abode on the frozen sea. It continued all night long, and on the third morning of their journey they found it impossible to proceed. In the afternoon it was discovered that the ice was breaking, and the water made its appearance not more than ten rods from them. They became seriously alarmed, and consulted as to whether they should attempt to reach the land, which was three miles distant, or remain in their quarters and take the chance of being carried out to sea. They decided upon the latter course, and eagerly awaited the coming of another day. The gale abated about 10 P. M., and in the morning the weather was favorable. Proceeding on their way, they had every difficulty to contend with. The ice had given away in every direction. The snow was very deep and treacherous, and it was with great difficulty that the sledge could be moved so as to guard it against falling into some snow-covered ice-crack. The dogs also were in a starving condition. Each member of the party took the lead by turns, to guard against the dangers which beset them, and to find a track through the hummocks which met them on all sides. By 2 P. M. the entire party were in such an exhausted condition that they were compelled to halt and partake of their now very slender stock of provisions. After this they proceeded with renewed vigor, reaching the shore ice in safety, and in a short time they were alongside of

Ugarng's *igloo* (ice hut), built on the southwest side of Rogers' Island, overlooking Cornelius Grinnell Bay.

On the following day, January 15th, the explorations commenced. Rabbit tracks were discovered on the hills, and in the distance were seen the prominent headlands noticed on the first arrival of the ship. In the meantime the provisions gave out, and the party found themselves without food or light, with the thermometer 25° below zero. The natives met with no success in hunting or seal-fishing, but brought to the hut with them some black skin and *kuang*, which they had obtained from a *cache* made the previous fall by the natives, when the ship was in the bay. At noon next day a heavy snowstorm set in, which continued nearly four days, confining the party to the hut, and compelling them to live on raw frozen black skin, *kuang* and seal.

On Sunday, the 20th, they were in a sad state from actual want of food. The weather continued so forbidding that nothing could be obtained by hunting. At 8 o'clock in the morning, Mr. Hall and Koodloo started to return to the ship with a sledge, and twelve nearly starved dogs. A speedy trip was anticipated, but the difficulties encountered were so great that Ebierbing followed them on snow shoes, and taking his place sent Mr. Hall back to the huts to await their return. The supply of food was exhausted without any apparent prospect of obtaining a supply. Christmas eve found the party with nothing left but a piece of black skin, one and a quarter inch wide, two inches long, and three-quarters of an inch thick. During the night one of the natives came to the hut with some choice morsels cut from a seal which he had just caught, but he had no sooner entered than a starving dog, which had been allowed to sleep in the hut over night, sprang at the meat and ate a fair share of it. Before the party recovered from their surprise, the remaining hungry dogs made a rush from the outside and devoured the remainder. The next morning Ebierbing arrived from the ship with supplies, and a seal weighing at least two hundred pounds, thereby raising the siege of starvation by supplying the wants of all. A letter from one of the officers of the ship stated that the exploring party had been given up for lost in the great storm which they encountered on their journey.

In speaking of the Innuít people, Mr. Hall says they are noted chiefly for their thoughtlessness and improvidence.

When they have an abundant supply of food they devour it all as fast as they can without considering that on the day following they may be in absolute want, and no course of reasoning can induce them to change in this respect.

February 16th Mr. Hall once more started on an exploring expedition, arriving the same afternoon at Clark's Harbor, and proceeding at once to Allen's Island, where he remained two days at Ugarnng's *igloo*, curiously watching the various



START OF A SLEDGE EXPEDITION.

efforts made to sustain and enjoy life by the singular people of the north. He spent forty-two nights in an igloo, living with the natives most of the time on their food according to their own customs, and said he had no regrets in looking back upon his experience, but on the contrary enjoyed his life so spent as well as he did under the most favorable circumstances. On the 21st he bade adieu to his Inuit friends and started on his return to the ship, accompanied by Ebierbing, Ugarnng and Kunniu, taking with them the sledge and

dogs. The journey was devoid of accident or excitement, and the party reached the ship on the evening of the same day.

Hall's return from this first voyage was now compelled by the release of the ship, the whaling season of the year having ended. He had acquired some useful knowledge of Esquimau life and language, the further in which he advanced the more he hoped to turn it to advantage on a renewed voyage. August 9th the *George Henry* took a final leave of the inmates of the bay, a crowd of whom surrounded her in their Kias and Oo-miens, waving their partings and shouting their *Ter-bou-e-tie* (farewell).



HUDSON STRAIT.

Without any special incident the *George Henry* reached New London September 13th, 1862.

On the first day of July, 1864, Mr. Hall sailed from New London in the whaler *Monticello*, Captain G. A. Chapel, of New York, accompanied by the tender *Helen F.*

On the 28th Hudson Straits were entered and the ship shaped her course for Resolution Island. The ship's course across the bay was ended on the 20th day of August by her anchoring at Depot Island.

But the landing here was a grievous disappointment to the explorer. He had hoped to do some good surveying work on Marble Island, the original destination of the two ships, and perhaps to discover the remains of the most unfortunate

expedition, under Knight and Barlow, which perished there in 1719. Mate Chester, who accompanied the party to the island, estimated the weight of Hall's boat and outfit at only one thousand four hundred pounds. It was twenty-eight feet long, with a five feet ten inch beam, and of but twenty-six inches depth, when fully loaded.

The whaler left the harbor on her first cruise of the season, and Hall began his five years' Arctic life; a tent was erected and some observations made for position.

He had now the offer of an assistant in a Mr. Rudolph, one of the crew of a whaler which had come in; and as the man had spent one winter among the Innuits, was recommended by the mate of the ship, and declared himself ready to go on the proposed journey, two or three years inland, he was accepted after being fully told the darkest side of the experience he might be called to pass through. On the 29th the tender Helen F. sailed with the party of four for Wager River, and the next day the captain landed at Whale Point, which he believed on the river; by Hall's observations afterwards it proved to be forty miles south of the point of the captain's reckoning. This was a second and yet more grievous disappointment, and it caused the loss of a whole year to the objects in view; for, had the landing been on the river, the journey to Repulse Bay could have been easily made before the season closed, and winter-quarters secured there with preparations for the spring journey. But there was no correcting the error. Reaching a little harbor Hall and Rudolph went waist-deep in the water to haul the boat ashore, and a cache was soon made for stores. The position of this "first encampment" was lat. $64^{\circ} 35' N.$, long. $87^{\circ} 33' W.$

A single white man as a leader, with a companion who soon proved useless as an assistant, a desolate region, and winter almost at hand! But here was a man of brave heart and of experience. Up the shallow Welcome of Sir Thomas Rowe the little craft now coasted, piloted by the Esquimau, Ebierbing (Joe), on whom the party were for a long season to be dependent for their steersman as well as hunter. Hall wrote to Chapel that American whalers who had opened up the fishing within the currents and eddies of the Welcome must be good navigators; for the Sylvia, drawing about eighteen inches, often touched on her course, and no channel could be

found. After an advance of but a few miles Joe sighted a *tupik* (skin-tent), and soon afterward a native came toward the boat, gun in hand. A sharp pull, and a leap from the bow, and Hall had made his first new friend in *Owela*, a native.

The natives advised Hall that he could not reach Repulse Bay at that late season of the year; that he would not find any Innuits there, as they always spent the winter elsewhere to kill the seal and walrus; and that if he could get there he would be too late to kill any Tuk-too. They would go themselves to the bay next season, and then to Neit-chi-lle, and if he would spend the winter at Noo-wook, they would give him all the Tuk-too, walrus, seal and bear-meat needed, reindeer furs and assistance. He decided of necessity to stay with them.

The 15th of September was a day of gale. The Welcome was lashed into fury by the north wind, which drove far inland everything like game. On the going down of the sea Hall and Rudolph, with Ar-too-a and Joe, went out in swift pursuit of an ook-gook which had been seen drifting down, seemingly asleep; but the cautious seal waked at the sound of the oars and disappeared.

With the rapid change of the season the nights began to be cold, ice was forming on the fresh-water lakes, and there were signs of an approaching snow-storm. A sheltered place for the tupiks became a necessity. On the 18th Hall's journal says: "It has been moving-day with us, and an interesting picture might have been seen—the Innuits and the two Kod-lu-nas, with packs on our backs, tramping along towards our destined new home. Old Mother Ook-bar-loo had for her pack a monstrous roll of reindeer-skins, which was topped with kettles and pans and various little instruments used by Innuits in their domestic affairs, while in her hand she carried spears and poles and other things that need not be mentioned here. Ar-too-a had for his pack his tent and pole, his gun and et ceteras in his hand. His wife had a huge roll of reindeer-skins and other things, much of the character of Ook-bar-loo's. The dogs had saddle-bags, and topping them were pannikins and such varied things as are always to be found in Inuit use. Ebierbing had for his pack our tent and some five or six tent-poles, while in his hands he carried his gun. Charley Rudolph had a large roll of reindeer-skins, carrying

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SHOOTING SEALS.

also numerous tent-poles. Too-koo-litoo had deerskins, and in her hands various things. I carried on my shoulder two rifles and one gun, each in covers; under one arm my compass tripod, and in one hand my little basket, which held my pet Ward chronometer, and in the other my trunk of instruments."

The Innuits then brought out from their deposits the reindeer-skins *cached* in the summer. The weight of these, borne by the women, was as much as one hundred pounds to each. At their distribution the women were allowed to choose the best.

The ground was now covered with snow, the lakes bore a man's weight, and the heavy weather on the coast drove the game inland. Flocks of the *Plarmigan* (snow-partridges) were found after each snowfall. In midwinter, at a distance of ten feet, they are scarcely distinguishable from the snow.

By the help of Ou-e-la, Armou and Joe, Hall established himself in his first winter-quarters. He says of his igloo, of ten feet only in diameter, that his house was a building without a corner and without props or braces; the wall, roof and door a unity, yet so strong as to defy the power of the fiercest Arctic gales. Two months afterwards he wrote: "I exchanged tent for snow-house, and have been all the time as comfortable as I ever have been in my life. You would be quite interested in taking a walk through my winter-quarters; one main *igloo* for myself and Esquimaux friends, and three others, all joined to the main, for storehouses. A low, crooked passage-way of fifty feet in length leads into our dwelling."

In this igloo Mr. Hall spent the greater part of the winter. The next summer he explored the North Pole River, near the Fort Hope of Dr. Rae. This was to be his winter-quarters, in which he was to prepare for his sledge journey next season to the west. His two close companions, Joe and Too-koo-litoo (Hannah), remained in his igloo.

Excepting occasionally a few salmon or perhaps a dozen partridges, no provision was available during the severe winter months but the deer-meat. To visit the deposits was then a matter of frequency, and often a work of severe exposure and labor; nor, because of the scarcity of fuel, was it often practicable to have much cooking done.

A very large number of deer had been deposited; in Sep-

tember as many as ninety-three, in the latter part of which month Hall estimated that as many as a thousand passed in one day; in November fifty more were *cached*; and a few were seen as late as January 27th. They did not again appear until the end of March, when the does that were with young began their migration.

Hall's share in the exposures, labors, and privations of the season was again of a severely trying character. On one visit to his favorite deer-pass, where he had been accustomed to watch behind a stone wall, he endeavored with Joe to *cache* five that they had killed the day previous, and within the weary hours of piling up over them rock and stone was overtaken by a fierce storm of sharp, cutting, blinding snow on the wings of the gale—enough, he said, to make one exclaim: "None but devils should be doomed to such a punishment." Entering the hut on their return, each seemed to the other and to Too-koo-litoo a pillar of snow, until for a long time they had pounded and threshed their native dresses. On another visit he had the misfortune to find that a deposit made six feet above the river level had been swept by a six-days' gale and storm. The main supply of food must, however, be from these deposits. At times, however, his storehouse was well filled, and a season of feasting ensued; and as often, through a failure in recovering the deposits, or through the caprice of the Innuits, he was placed on short rations. His journal of January 21st tells the following: "I arise usually between seven and eight in the morning, and after smoking a little, cut a few chips from whatever little choice block of venison I may happen to have, and eat the same raw and hard-frozen. As eating venison alone is dry work unless one has *tood-noo*, I eat seal-blubber, which is old, of strong color, and of strong old cheese-taste."

The journals of November have interesting notes also of refraction and parhelia. At 10 hrs. 12 min. 41 sec. mean time of Fort Hope, the sun's lower limb was a half degree above the sea horizon; Southampton Island by refraction loomed up from ten to thirty minutes of arc above it, although at no other time visible from Hall's place of observation, opposite Rae's Beacon Hill. Cape Frigid, forty-seven geographical miles distant, was visible, and the coast lines yet farther south, while a zone of about five degrees in width from the horizon upward was of resplendent colors extending

around the heavens, the half-circle opposite the sun being the more brilliant. At sunset the phenomenon renewed itself. A mock sun on the 30th deceived the untutored natives.

During the last of the winter of 1865 and the beginning of the spring following, estrangements from the "good feeling" which had existed between the white man and the natives showed themselves to a degree producing some apprehension of personal danger. But Hall succeeded in preserving his control over the restless spirits of Ou-e-la, Ar-mou, and their people. His chief dependence for securing this was his known connection with the whalers, whose return was now again to be expected in the bay, and, next to this, his frequent supplies of tobacco. Happily the estrangements were not serious. Both these chiefs had committed themselves and their people to the promise of assistance on his journey toward King William Land, and he was dependent on this promise.

Ar-mou made for him a complete chart of the coasts he had visited, embracing a line from Pond's Bay to Fort Churchill, a distance of 966 nautical miles—a map rendering valuable aid to the explorer.*

Hall's occupations at Fort Hope had been the preparing the necessary provisions and stores for this first westward advance. March 30th, 1866, his native friends, Ar-mou, See-gar, Ar-goo-moo-too-lik, and Ou-e-la, gave proof of renewed friendship by the loan of their dogs; this was the more pleasing, as during the winter he had almost despaired of securing

*In the *Fortnightly Review*, for September, 1880, Mr. Francis Dalton, F. R. S., in an article under the heading of "Mental Imagery," says: "The Esquimaux are geographers by instinct, and appear to see vast tracts of country mapped out in their heads." From the multitude of illustrations of their map-drawing powers, I will select one from those included in the journals of Captain Hall, at page 224, which were published last year by the United States government under the editorship of Professor J. E. Nourse. It is the fac-simile of a chart drawn by an Esquimau, who was a thorough barbarian in the accepted sense of the word; that is to say, he spoke no language except his own uncouth tongue. He was wholly uneducated according to our modern ideas, and he lived in what we should call a strange fashion. This man drew from memory a chart of the region over which he had at one time or another gone in a canoe. It extended from Pond's Bay, in latitude 73°, to Fort Churchill, in latitude 58° 44', over a distance in a straight line of more than 960 to 1,100 English miles, the coast being so indented by arms of the sea that its length is six times as great. On the comparing this chart (rough Esquimau outline) with the admiralty chart of 1870, their accordance is remarkable. I have seen many route-maps made by travellers in past years, when the scientific exploration of the world was much less advanced than it is now, and I can confidently say that I have never known of any traveller, white, brown, or black, civilized or uncivilized, in Africa, Asia, or Australia, who, being unprovided with instruments, and trusting to his memory alone, has produced a chart comparable in extent and accuracy to this barbarous Esquimau.



MOCK SUNS AS SEEN IN THE ARCTIC REGIONS.

a team, his own stock consisting of "but two female dogs, equal to one good dog, and two puppies, equal to a quarter of a good dog." The price at which one had been held was not lower than a double-barrelled gun.

Ebierbing, Ar-moo, and Nu-ker-zhoo, with their families, and the young native, She-nuk-shoo, made up his party; all the others had gone off from the encampment. The start was made with the wind fresh from the north-northwest and the temperature 50° below frost point, and the gale became very severe, beating fiercely and directly in the face of one who was poorly prepared to bear it, from his having eaten little or no food for several days. In writing of this, he says there had been before him an abundance of such as he would have relished, but he had been so busy in writing and so unwrapped in anxieties that he had little or no appetite.

Delays from different sources increased, the Innuits sometimes pleading that they must turn aside for a musk-ox hunt, and then rest the whole of the day following. The average travel was scarcely more than from two to three miles per day, the party nearing Cape Weynton on the south side of Colville Bay at the close of the twenty-eighth day—a journey made by Dr. Rae in '54, without a dog-team, in five days.

Here Mr. Hall stored a goodly quantity of provisions for a journey he had resolved to attempt with the aid of white men, whom he hoped to secure from the whalers in the coming spring, and on the 23d of May was safe again in his old camping-ground of Beacon Hill. In February, 1867, he set out for Igloodik, to buy some dogs for his intended sledge-journey, which he reached on the 26th. Here he purchased fourteen dogs, and after a journey of fifty-two days, again returned to Beacon Hill; but then the whaling season was open, and he was unable to secure the necessary men. In September he went into winter-quarters again, and on March 23d he set out with his two Esquimaux, a white man, Sailor, and the native, Papesooa, for King William Land. After many hardships he reached Todd's Island, where he recovered from several Innuits different articles which had formerly belonged to Crozier's party, of Sir John Franklin's expedition.

The final return journey was now begun. All the natives who had gone with Hall were anxious to be safe back at Repulse Bay, Nu-ker-zhoo declaring that unless they started back in four days, the ice and snow would be off the sea, and

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AN ESQUIMAUX SNOW VILLAGE.

CHAPTER VIII.

THE POLARIS EXPEDITION OF 1871.

Death and Burial of Captain Hall—The Polaris Leaves the Harbor and Drifts South—The Separation—Drift on the Floe—Rescue by the Tigress—Rescue of the Polaris party by the Ravenscraig.

IN 1870 the Congress of the United States appropriated the sum of \$50,000 for an expedition to the North Pole, and eight days afterward Captain Hall received a commission as commander of the same.

The vessel selected was the steamer *Periwinkle*, a tug which had seen some service in the war of the rebellion; her burden was 387 tons. After being newly and heavily timbered and strengthened in her side-planking, the bottom was thoroughly caulked, then double-planked, caulked, and coppered. Everything else deemed necessary for safety and comfort was also done with such care that "no vessel, even if especially built, could have been better adapted to the service." Launched at the Washington yard, April 25th, 1871, she was named by Hall the *Polaris*, under which name she sailed for New York, June 10th, and, after further equipment at the Brooklyn yard, proceeded to New London, June 29th, and sailed for the Arctic zone July 3d.

Her complement of officers, including the scientific corps, was: C. F. Hall, commander; S. O. Budington, sailing-master; George E. Tyson, assistant navigator; H. C. Chester, mate; William Morton, second mate; Emil Schumann, chief-engineer; A. A. Odell, assistant engineer; N. J. Coffin, carpenter; Emil Bessels, surgeon, chief of scientific staff; R. W. D. Bryan, astronomer; Frederick Meyer, meteorologist. The crew consisted of fourteen persons, and the two Esquimaux, Joe and Hannah, were again Hall's companions.

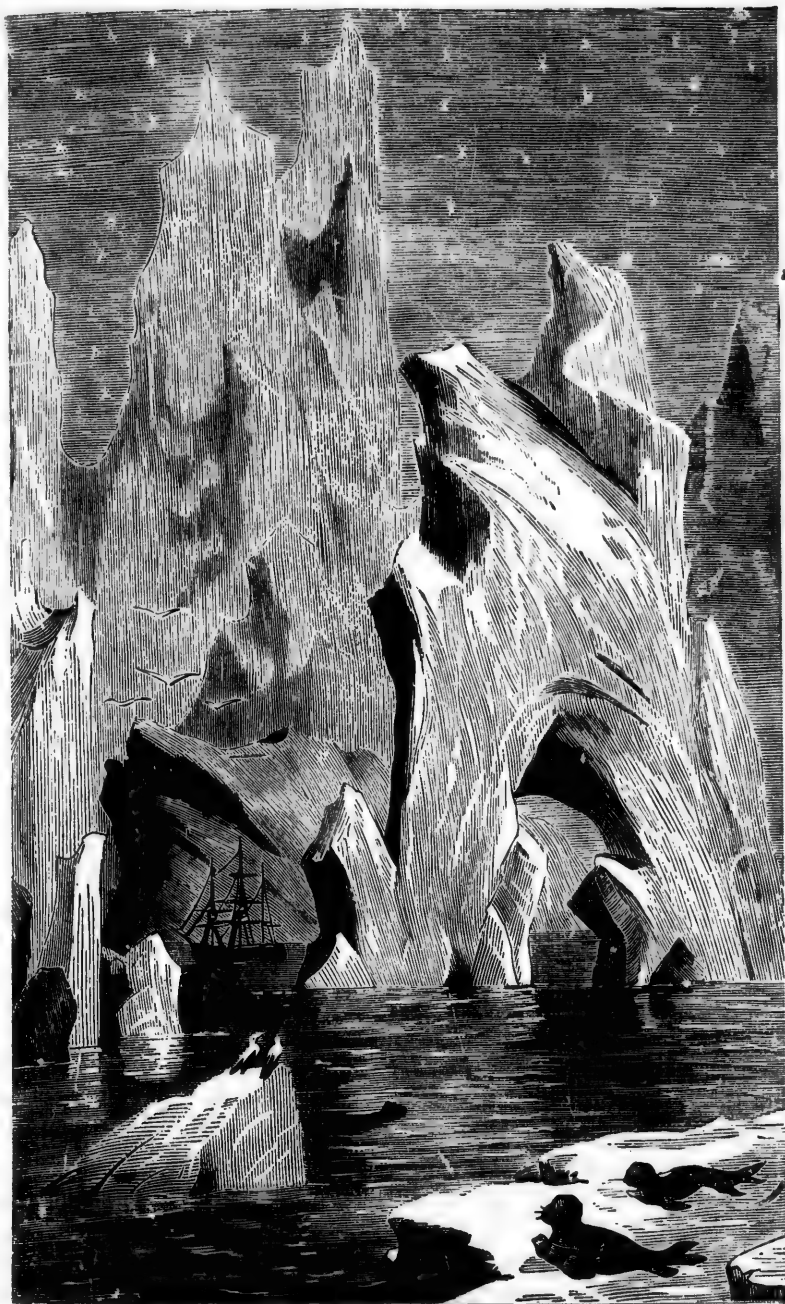
On June 29th, 1871, the *Polaris* steamed out of New York harbor, and on the 13th of July reached St. John's, Newfoundland, where the governor and citizens extended to the expe-

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THE POLARIS ENTERING THE ICE.

dition a hearty welcome. From St. John's they proceeded up Davis' Straits, and arrived at Holsteinborg, Greenland, on the 31st. They remained there purchasing dogs, furs, and other articles necessary, until the arrival of the transport Congress, with additional stores and supplies; after which, on August 17th, the journey to the pole was fairly commenced. Stops were made at Upernavik and Kong-i-toke, for the purchase of more dogs, and on the 22d, Tessuisak was reached, the most northern permanent settlement on the globe, being in latitude $70^{\circ} 30'$.

When they were in Holsteinborg there was a difference of opinion between Hall and his scientific associates as to the course to be pursued. Hall's object was to reach the pole, and to this he determined that all else should be subordinate. The dispute was adjusted, and Hall's view prevailed. During the three days they remained at Tessuisak he wrote a lengthy despatch, showing that all the party were in excellent spirits, and full of hope, but this despatch did not reach the United States for nearly a year.

On the 24th of August, 1871, the *Polaris* entered the regions of perpetual ice and snow, and from that time until the 30th of April, 1873, not a word was heard from the expedition by the civilized world. When the *Polaris* left Tessuisak she crossed the head of Melville Bay, passed Northumberland Island, going through Smith's Sound. Meeting with very little obstruction from the ice, she proceeded until she entered what Kane, Morton, and Hayes pronounced the open polar sea, but which proved to be but an expansion of the sound, and to which the name of Kane Sea has since been given. In a week they reached their highest northern point, $82^{\circ} 29'$ by Hall's reckoning, and $82^{\circ} 16'$ by Meyer's calculation, a difference of about fifteen miles. On August 30th the channel, which had been named Robeson Strait, became blocked with floating ice, through which it was found impossible to make a passage. A small bay was found close by named Refuge Harbor, in which Hall desired to take winter-quarters. A consultation, however, decided against this, and soon after the ice became master of the situation, drifting the *Polaris* in a southerly direction for four days. The pack opened on September 3d, and a cove was made to the eastward, which set into the Greenland shore. An immense iceberg sheltered its mouth, and here it was determined to

pass the winter. The cove is in latitude $80^{\circ} 38'$ and was named Polaris Bay, while the huge island of ice was designated Providenceberg. This point is about 200 miles north of Kane's famous winter-quarters, and about three miles north of the farthest point reached by Hayes.

The iceberg was used as a mooring-place for the Polaris, an observatory was at once established, scientific work was commenced immediately, and Hall began preparations for a sledge-journey in the direction of the pole, which were soon completed. On October 10th he started with four sledges and fourteen dogs, accompanied by Chester, the mate, and the Esquimaux, Ebierbing and Hans. The expedition was planned to last two weeks, one to go north, and the other in



HARBOR OF REFUGE—SMITH'S SOUND.

which to return. On the evening of the 20th Hall wrote the last words ever penned by him, which were a communication to the Secretary of the Navy. It was a description of their voyage up to the time of settling down in their winter-quarters, and was full of words of hope and confidence in the success of the expedition. A copy of the despatch was placed in a pillar at Brevoort Cape, the northern headland of the bay, where the encampment was made on the 21st of October, 1871. The original, which was first read in Washington nearly two years after it was written, showed conclusively that he was confident of success, and, taken in connection with the one written formerly, refuted the charges that the equipment of the Polaris was incomplete. The expedition advanced

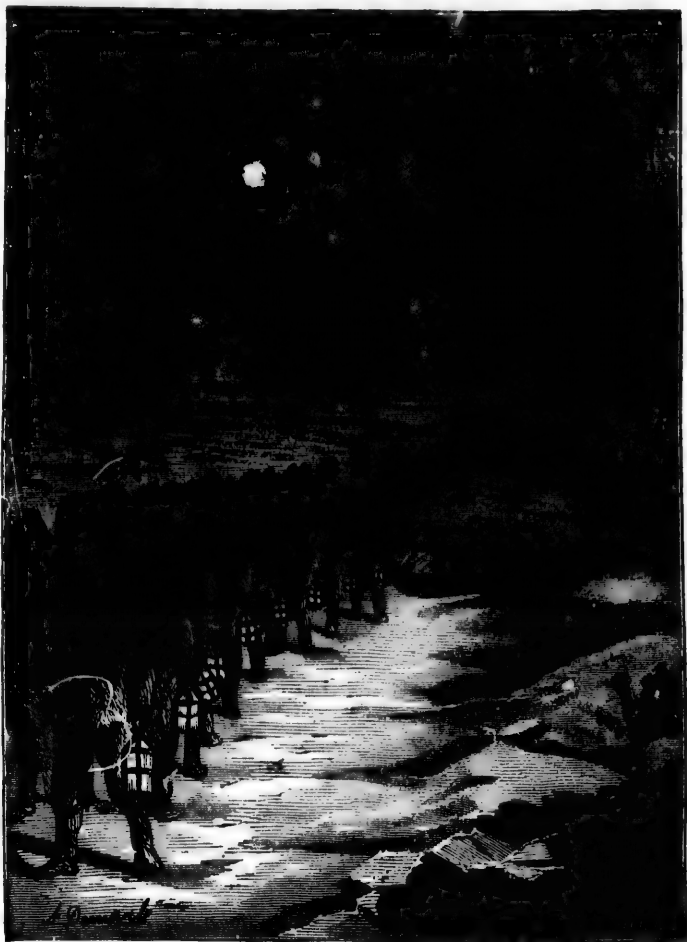
north ten days, making six encampments and progressing seventy miles, or about $83^{\circ} 5'$ north. At that point there was an appearance of land still north of them, but a cloud prevented any observation which would definitely settle the matter. With the exception of a glacier on the east side of the strait, commencing in latitude $80^{\circ} 30'$ north, the mountains on all sides of Kennedy Channel and Robeson Strait were free from snow and ice. Live seals, geese, ducks, musk-cattle, rabbits, wolves, foxes, bears, partridges, lemmings, etc., were found in abundance. On the 13th, three days after they started, the Arctic night set in, the thermometer then being 7° .

The return trip was made rapidly, the party reaching the *Polaris* in four days. Hall was apparently in his usual health, but the change from an open-air temperature of from 15° to 20° below zero, to the atmosphere of the cabin of 60° or 70° above, had a bad effect upon him, and he partook of no refreshment except a cup of coffee. After indulging in a hot sponge bath, he retired for the night. In the morning his condition had changed for the worse, and he suffered much from a burning in the throat, and vomiting. He steadily grew worse for a week, and to the complications were added partial paralysis and delirium. He partially recovered, and made an attempt to resume his work, believing that in a few days he would be completely restored to health. In this he was doomed to disappointment, as on the night of November 8th he had a fresh attack, and was found in his cabin by Tyson insensible, and breathing heavily. That night he died, and three days later he was laid in a shallow grave in the frozen ground. The doctor pronounced the cause of death to be apoplexy, but Hall believed that poison had been placed in the cup of coffee which he drank, and in the delirium which preceded his death he imagined that every person who went near him was endeavoring to kill him. In regard to the matter, the commission reported without a dissenting voice that "the death of Captain Hall resulted naturally from disease, without fault on the part of any one."

Physically, Hall was an exceptional man. His tenacity of life and powers of endurance were far above those of ordinary men. Above medium height, he was powerfully built, with broad chest, muscular limbs, and a large head. He was remarkable for his temperate habits, and after his return from

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his second expedition, after passing through the ordeal of an Arctic winter, a more robust man could not have been found. In the event of Hall's death the command was to fall upon Budington. The winter was passed in the usual manner in



BURIAL OF CAPTAIN HALL.

that region, but no trouble was experienced from cold or want of food. The scientific observations were made constantly, and whenever it was possible to do so, the coast was surveyed. Whenever the opportunity was favorable, the Esquimaux hunted with success, and in this manner an abun-

dance of skins was procured. The storerooms were also well filled with the skeletons of animals and birds, eggs, and many other curiosities of natural history. Nets and lines were set, but no fish could be caught. Considerable driftwood was picked up, which had evidently found its way there from a warmer climate.

A fierce gale from the northeast, about two weeks after the death of Hall, drove the *Polaris* from her moorings, and she dragged her anchors until she landed against the iceberg at the mouth of the cove, where she was secured, and remained there until June following. Later she was driven farther on the berg by pack-ice, where her prow remained fast, while the stern moved up and down, as influenced by the tides. This position strained the stern-piece and started a portion of the planking, so that when she once more settled in her native element it was found that she leaked considerably. However, when emptied once by the steam-pumps, it was an easy matter to keep the hold clear by working a few minutes each hour.

Chester and Tyson, under orders from Budington, undertook a boat expedition early in June. The orders were to go as far as they could up the shore. The expedition was a failure. One boat was crushed by the ice almost at the hour of starting. Its place was supplied by the canvas boat, but they failed to reach a point as far north as that reached by Hall in his sledge-journey. They remained there until the middle of July, 1872, but before the ice opened they were recalled by Budington, and the party was compelled to abandon the boats, and make their way back to the steamer overland. Budington had determined to return home as soon as the ice would leave him at liberty to do so, and under existing circumstances this seemed the wiser course, although it is not believed that had Hall been living he would have consented to it.

The ice left the *Polaris* free early in August, and she steamed slowly down the western shore. At the close of the first day she was fastened in the ice, and was in a very dangerous position. In latitude $80^{\circ} 2'$ she was made fast to a floe on the 16th, which drifted her hither and thither in Smith's Sound for two months, during which time not more than twelve miles were gained to the south, bringing her in the neighborhood of Northumberland Island, in latitude $79^{\circ} 53'$.



RESCUE OF CAPT. GEO. E. TYSON AND PARTY.

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Apprehending danger, provisions were carried on deck, a canvas shelter was erected on the ice, and every preparation made for a speedy abandonment of the vessel should it become necessary.

A very severe gale set in from the south on October 15th. The ice pressed in under the ship, and she was actually lifted out of the water and thrown on her beam-ends on the ice. Provisions and stores were thrown over, and under orders about half the crew proceeded to carry them to a more secure place. The boats had been lowered, and in the middle of the night, in the midst of a terrific storm, the *Polaris* broke loose and immediately disappeared, leaving on the ice the nineteen persons who had gone there to save the provisions, at which they labored all night. In the morning they attempted to reach the shore, but failed. The *Polaris* was seen during the day under sail and steam, but soon changed her course, and disappeared. Another glimpse of her was caught a few hours later, but she again disappeared, and they very naturally believed that they had been purposely abandoned.

The hardships endured by those who were left upon the ice are beyond description. For 195 days these nineteen men, women, and children drifted on floating ice through an Arctic winter, at the mercy of wind and water. The floe on which they found themselves on leaving the ship was soon shattered, and the party found themselves distributed on different pieces of ice. They had two boats, with which they finally succeeded in gathering all upon the principal floe, where they remained more dead than alive all night. Several attempts were made to reach the shore. The dogs and sledges were put in readiness, and each attempt to escape proved a dismal failure. When it was seen that there was no prospect of reaching the shore snow-houses were built, and everything possible was done to make the time pass comfortably and pleasantly. Land was seen for several days, but as the weather was unfavorable for taking observations, it could not be recognized. Sometimes they were in a condition bordering on starvation, and saw death staring them in the face. Cannibalism was thought of, but each time food was furnished in time to save them.

Meyer succeeded in taking an observation on New Year's Eve, and found they were in latitude $72^{\circ} 10'$, longitude $60^{\circ} 40'$; showing that in nine weeks they had drifted southward

about 525 miles. This was cheering news, though the thermometer stood 39° below zero. This was early in January. In February they encountered several storms, and very cold weather. The close of the month found them nearly out of provisions, but early in March they caught some seals, and had food in abundance. Immense icebergs surrounded the floe, and it was soon cracking and splitting with as much noise as is made by artillery and musketry in battle. Everything was broken in pieces, and the party stuck to the largest piece. On the last day of March an observation showed them to be in latitude $59^{\circ} 41'$, and that during the last five days they had drifted at the rate of twenty-three miles per day. At that time their piece of ice had grown much smaller, and they were in clear water, no other ice being in sight.

The month of April came in with a terrific storm, and it became evident that they must take refuge in the boat. They got under way early in the morning, but found their craft leaking badly, and loaded too deep to carry them. Meat and clothes were thrown overboard, and nothing was carried but a tent, a few skins for covering, and a little bread and pemmican. About fifteen miles were made in a southerly direction, when a landing was made to lighten the boat. The tent was pitched, and the party remained all night, although the ice was cracking and breaking up all around them. The voyage was resumed again in the morning, but had only proceeded about two hours before they encountered a gale. They had a number of narrow escapes before a piece of ice large enough to land upon could be found; upon landing the boat was rapidly making water, and when cleared a great hole was found in her side. Repairs were made as soon as possible, and they took to the water, only to find themselves again surrounded by ice in such a manner that they were compelled to seek refuge on a floe. Gale succeeded gale, and as the ice continued to break they were constantly removing their things to a new centre. On the night of the 7th it broke again, carrying with it the boat, the kayak, and Mr. Meyer. For a time it seemed as though all were lost. The ice kept closing in on them and they were without hope of saving the boats or their unfortunate companion. When daylight arrived an attempt was made to rescue them, all the party, except two, venturing away on the ice. All who ventured reached the boat in safety, and with much difficulty she was taken back,

and Meyer was saved. The kayak was then secured in a similar manner. The tent was taken down and erected again on the centre of what had then become a small piece of ice, and a snow hut was constructed at its side. Again the wind commenced blowing a gale, and preparations were made to take to the boat. They were literally washed out of the tent and snow hut. The women and children were placed in the boat without a dry spot, and without so much as a piece of fresh water ice to eat. The storm soon abated, however, and the tent was pitched once more. The six months of the voyage on the ice were completed April 16th. At that time they were still without any prospect of a rescue, and starvation was staring them in the face. Seals were in sight all around them, but none could be caught. Only a few days' provisions were left, and cannibalism was staring them in the face. On the 18th a small hole was discovered in the ice some distance off, from which a seal large enough for three days' provisions was secured, and divided equally among the party. On the 20th a sea struck the ice, and carried away everything which was loose upon it. This was repeated every fifteen minutes, and it kept all busy looking for a place which would enable them to successfully withstand the next shock.

The agony of suspense continued ten days longer, and in that brief space were crowded many perilous adventures, which were a severe tax on the endurance of the sufferers. An observation showed that they were in latitude $53^{\circ} 57'$, a distance of 1,875 miles in a straight line south from the point where they started. Each day passed as did its predecessor, the sufferers being all wet and hungry. Sometimes they came within sight of land, but were always driven off again. Meyer seemed to fare worst of all, and his chances for surviving more than a few days longer were considered slender, although all were in a deplorable condition, and had suffered indescribable tortures. Skins that had been tanned and saved for clothing were devoured as a dainty morsel, but even this did not last long, and on April 26th they found themselves without a morsel of food. On that day a bear was discovered on the ice, moving toward them. The Esquimaux, Joe and Hans, took their guns, and at once went to meet it, the result being that the bear, which came after a meal, was soon the substance of one. That night another gale sprung up, accompanied by heavy rain and snow squalls.

By morning the ice upon which they had taken refuge had so wasted away that it became evident it would not outlive the gale, and they were compelled to take the desperate chance of a stormy ocean, in a light boat, insecurely patched and overloaded. The danger was great, but the boat survived the storm, its occupants being thoroughly drenched, without any chance to dry themselves, having seen neither sun, moon, nor stars for a week. They soon struck a sealing ground, where they found more seals than they had ever seen before, but for some time were unable to secure any. They were, however, at last successful, and had seal food in abundance. The ice soon became very thick around them. They again started in the boat, but were soon compelled to land on the ice again, where they repaired the boat, and dried their clothing to some extent. On the 28th of April the inevitable gale commenced again, and all night they stood by the boat, launching her in the morning, but were compelled to haul her up on the ice, where icebergs threatened her destruction, but which they fortunately escaped by taking to a floe. The ice became slacker, and during that afternoon they caught sight of a steamer ahead of them and a little to the north. They hoisted their colors, and endeavored to cut her off, but she disappeared without seeing them. Wearied with hardship and disappointment they landed for the night on a small piece of ice.

For the first time in many nights they beheld the stars, and the new moon also made her appearance. A fire was kept up all night in the hope that they would be seen by the steamer; though in this they were disappointed. In the morning they started early, and at daylight again sighted the steamer about five miles off. The boat was launched and for an hour they gained on her, but in another hour they became fastened in the ice, and could proceed no farther. Landing on a piece of ice they hoisted their colors upon the most elevated point they could find, and then fired three rounds from their rifles and pistols, which were answered by three shots from the steamer. She was again seen the same evening, and while looking for her another steamer hove in sight on the other side.

The morning of Wednesday, April 30th, was thick and foggy, but when the fog broke a glorious sight met the eyes of the drifting party. A steamer was seen close to them, and as soon as they were discovered she bore down, and soon all

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were on board the staunch little craft *Tigress*, ending their perilous journey in latitude $52^{\circ} 35'$ north. The *Tigress* was in command of Captain Bartlett, and was owned in Newfoundland. Some time after the party was landed in safety at St.



TYSON'S CREW SIGHTING THE SCOTCH WHALER, WHICH RESCUED THEM OFF LABRADOR.

John's, Newfoundland, and a few days later the tidings of their rescue reached the United States. A steamer was despatched by the government from New York to bring the party to Washington, where they arrived early in the month of June.

Thus closes what is probably the most remarkable voyage in the history of navigation. It is marvellous that nineteen persons, two of whom were women, and five children, one of them only two months old, should have drifted almost two thousand miles, for one hundred and ninety-five days, through an Arctic winter of extraordinary severity, alive, and in good health. The harmony which existed among the party was striking. No one had a word of blame for any of his fellows, and the men, gathered as they were from nearly all nationalities, always thought first of what could be done for the Esquimaux women and children. In his testimony before the commissioners, one of the men said: "Captain Tyson had command on the ice; but he never seemed to take much of a lead. Everything seemed to go on very well. There was not a great deal of commanding; it was not wanted. When we did not do as he directed, it turned out wrong."

Let us now return to that portion of the expedition remaining on the *Polaris* after the sudden separation on the 15th of October, 1872. For a long time she had been leaking so badly that it was evident she could not float many days, and it was resolved to abandon her. Everything which could possibly be of use in a sojourn in that wilderness of ice and snow was taken out. The hawsers which held the steamer to the ice-floe parted, and she drifted away in a helpless manner. The lives of those on board were in great danger. It was clear she was in no condition to reach port, so it was determined to keep her afloat and beach her at some point where the stores could be saved. Her engines were useless, having evidently frozen up. Fortunately the ice cracked, and an opening was made, through which a favorable wind blew her to the shore, distant about twelve miles. The beaching was successfully accomplished, and the work of providing shelter for the winter was immediately commenced. The ship was stripped of all her material as rapidly as possible, and soon became a mere hulk. The timbers between deck were taken out, and all the planking and boarding removed. From this material a hut was built and roofed over with sails. A party of Esquimaux made their appearance, and for some strips of iron helped to carry the provisions, coal and stores from the dismantled *Polaris* to the hut. Having been extremely successful in their hunting expeditions they had a large surplus of skins which they dis-

posed of to the party, and from which was manufactured warm clothing. During the long winter they suffered little. The snow which fell banked up the hut and protected its inmates from the cold, while the Polaris formed a convenient wood-pile, where they obtained all the fuel they needed. Their provisions were ample for a time, but they knew they would soon be exhausted, and became fearful of their fate. They knew that for at least a year no news of the probable loss of the Polaris would reach the United States. "How should they escape?" was the great question propounded by each. There is always a man for every emergency, and in the present instance Chester, the mate, proved the hero. Assisted by the carpenter, Coffin, he set about building some boats, or scows, from the boards which had been used as a lining for the cabin. The work was patiently persevered in, and as summer drew near, the boats were finished.

Scurvy, that dreaded disease of the Arctic regions, made its appearance, but following the teachings of the dead Hall, the men abandoned the use of salt food, lived on raw walrus liver, and soon the malady was eradicated.

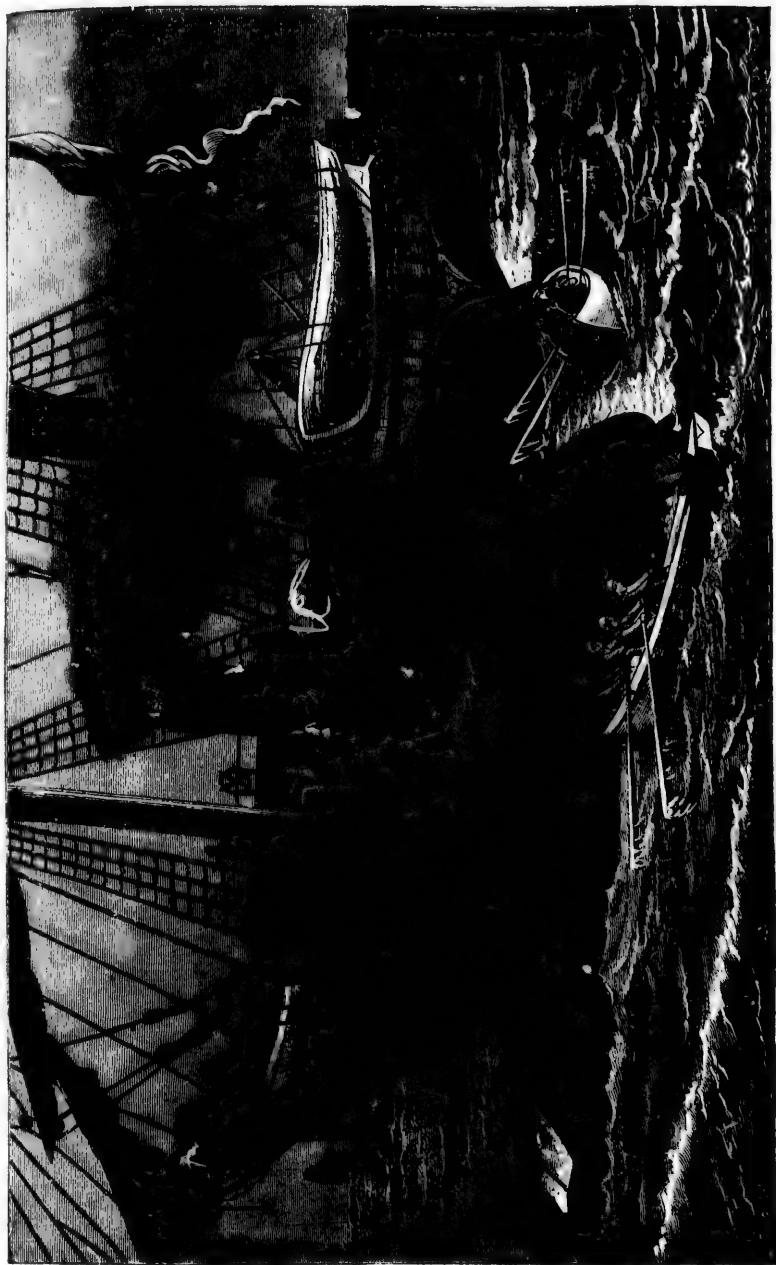
A fortunate thing for the party was the unusually early appearance of good weather. By the middle of June the ice commenced giving way, and at the earliest possible moment thereafter they took to the boats, and commenced their voyage in search of transportation home, with the odds fearfully against their success. While they were on their way the Tigress and Juniata were being fitted out to go in search of them.

The frailty of their boats compelled them to proceed slowly and cautiously. During the day they rowed along, and each night the boats were hauled up on the ice, where the only warm meal for the day was enjoyed. Their stove was a slight improvement on the Esquimau lamp, and their fuel was oil, while their wicks were strips of rope, and the fireplace a remnant of an iron kettle. A snow-storm delayed them several days at Hakluyt Island, a breeding-place for the auks, which were at that time hatching their young, and which supplied them an abundance of food limited only by their powers of consumption and the means of carrying it away.

After leaving the island their progress through the slush was very slow and laborious. They skirted the solid ice-

floes until July 20th, and just two days before the *Tigress* left New York in search of them, they sighted a vessel, which soon discovered them, and took them on board. She proved to be a Scottish whaler, the *Ravenscraig*. Not having secured a full cargo, and wishing to do so before he returned home, the captain of the *Ravenscraig* transferred the party to another steam-whaler, the *Arctic*, homeward bound, and on the afternoon of September 17th they landed at Dundee, Scotland. Their arrival was at once telegraphed to London, and the safety of the crew of the *Polaris* was announced the following morning in the American papers.

Thus ended one of the most wonderful voyages on record. Out of the forty men, women and children comprising the expedition, only one death, that of Captain Hall, occurred, a most marvellous preservation of life amid the greatest danger to which mariners were ever subjected. The unfortunate decease of Hall in the infancy of the enterprise prevented the accomplishment of such results as were desired and expected. With the commander died the hope and heart of the expedition, and no further attempt at discovery or original exploration was made. The loss of so brave and skillful a navigator may well be an occasion for the deepest sorrow and regret amongst all who reverence and admire American prowess and heroism.



ON BOARD THE "ARCTIC" WHALER.

CHAPTER IX.

THE GERMAN EXPEDITION UNDER KOLDEWEY.

Departure from Bremerhaven—Separation from the Hansa—Wreck of the Hansa—Adrift on the Ice—Danger of Starvation—Return to Fredericksthal.

THE first German Arctic expedition, commanded by Captain Koldewey, and originated by the celebrated scientist, Dr. Peterman, of Leipzig, departed from Bremerhaven on the 15th of June, 1869. The ship *Germania* was especially built for this expedition, and nothing was overlooked to make the outfit as complete as possible. The ship *Hansa* was to accompany the *Germania* as a tender. The vessels sailed up through the North Sea together, and did not separate until January. Mayen Land was passed, and the Arctic Ocean actually entered. On the 15th of July the *Germania* entered the ice-circle of Greenland. The two vessels became separated, and met again on the 18th, but through some misunderstanding of signals they became once more separated, and never met again.

Meeting with impassable ice to the west, the *Hansa* steered to eastward out of the ice, and began afresh. Having reached open water a second attempt was made at penetrating to the coast in the latitude corresponding with the instructions. Until the 10th of August the *Hansa* experienced good weather, and with a favorable wind sailed along the edge of the ice in a northerly direction, until, reaching the desired latitude, it was once more thought best to attempt the desired coast. But disappointment again met the crew. After sailing westward one night, they found themselves on the morning of the 14th hemmed in again on all sides; fresh ice formed between the floes, besides filling up every passage, so that the *Hansa* was fast again; and from this time forward until the complete blocking up of his vessel, the captain's log-book unfolds a series of troubles, dangers, and reverses.

For a long time it was hoped that the floes would part and allow the unfortunate craft to make toward the coast. Land

could be seen at a distance of not more than thirty-five miles, and a boat journey over the ice, and through such channels as occasionally presented themselves, seemed to confirm for a time that slender expectation. In the meantime, measures were taken to abandon the ship if it should become necessary. The sailors' winter clothing was distributed; the boats were made ready, and their respective crews told off; and the plan of their winter house was discussed in view of the possibility of being obliged to resort to one.

Their worst fears were soon realized. On the 19th of October the pressure of the ice upon the *Hansa* began to be tremendous. Huge ice-blocks forced themselves under her bow, and though these were crushed by the iron sheeting, they raised the forward part of the ship seventeen feet out of water, or rather out of its former position in the ice. The conviction soon seized the minds of the crew that the *Hansa* must break up, and the clothing, nautical instruments, journals, and cards, were in all haste taken over the landing-bridge.

The ship soon began to leak, and it was plain that it must be abandoned. All the provisions that could be secured from the wreck, together with fuel, medicine, and whatever could be easily moved in their present position, were dragged over the ice to a safe distance from the sinking vessel. A house had already been constructed from pieces of coal, and to this, their only resort, they were obliged to repair.

In the meantime the floe on which their residence was built was drifting steadily to the south. The routine in the black house soon became established, and as it closely resembled that on board ship, the lonely sailors readily adapted themselves to it. Care was taken to make the little settlement as conspicuous as possible in order that it might be seen by any Esquimaux who should happen on the coast. The food was lengthened out by the shooting of an occasional walrus, and free use of this article of diet was effectual in preventing scurvy, from which the party continued remarkably exempt.

The first days of January were destined to bring sad changes for the exiles on the ice. On the 11th there were heavy storms from the northeast, with driving snow. At six in the morning Hildebrandt, who happened to have the watch, burst in with the alarm, "All hands turn out!" An

indescribable tumult was heard outside. With furs and knapsacks all rushed out. But the outer entrance was snowed up, so to gain the outside quickly we broke through the snow-roof of the front hall. The tumult of the elements which met us there was beyond anything we had already experienced. Scarcely able to leave the spot, we stood huddled together for protection from the bad weather. Suddenly we heard, "Water on the floe close by!" The floe surrounding us split up; a heavy sea arose. Our field began again to break up on all sides. On the spot between our house and the piled up store of wood, which was about twenty-five paces distant, there suddenly opened a large gap. Washed by the powerful waves, it seemed as if the piece just broken off was about to fall upon us.

The house was shattered in fragments, and a temporary bivouac in the boats had to be experienced. A new house had to be constructed for temporary use; the boats were drawn nearer the middle of the floe, and all exigencies, so far as possible, provided for. So for several months the drift to the south continued; the only hope of release being in the boats, when the influence of the now rising sun and the southern latitude should open a channel in the rugged pack.

The month of May at last arrived, but to the weary watchers on the ice release seemed as far off as ever. From the spot where the Hansa had foundered, in 71° north latitude, they had moved to 61° —a distance of nearly 700 miles. They were startled to find that only six weeks of provisions remained, and that unless efforts were put forth to reach some inhabited spot, they must expect one by one to drop away from starvation.

A small island called Illuidlek lay about three miles away, and to this it was determined to remove, unless there should be some immediate and unlooked-for change in the ice. To this point, with much labor and many stoppages, they succeeded in dragging the boats and scanty stores. Here they spent some days looking in vain for traces of life, and the habitations of the Esquimaux whom the old voyager, Graah, had found here. Existence could not be sustained here for any protracted period. Even the animals, both on land and sea, seemed shy, and unwilling to minister to their necessities. Moreover, there was now open water sufficient to warrant embarking in the boats, and at any rate death upon

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the sea was no more terrible than slow starvation upon a rocky, barren islet. Accordingly, on the 6th of June, the boats were launched, sails were extemporized, and the party were once more in motion, glad in the consciousness of at least making an effort to save their lives.

Their aim was Frederichstahl, the nearest colony on the southwest coast of Greenland, but they hoped soon to meet one or the other of the Esquimaux seal-boats searching the Fiord. No such fortune, however, awaited them, though the increasing warmth and signs of vegetation along the coast as they sailed by gave promise of comfort and plenty in the near future.

Rounding Cape Farewell, they came in sight of the long-



MISSIONARIES IN GREENLAND.

wished-for bay of Frederichstahl on the 13th of June. The little settlement situated on this bay was the seat of the most southerly of the Moravian missions of Greenland. In this far-away place, self-sacrificing men from the Fatherland had settled for a life of isolation and toil among the ignorant and almost savage natives of this frozen continent. How the sight of their homely red houses cheered our band of weary voyagers, and how sweet to them sounded their own mother-tongue, spoken by warm-hearted countrymen!

From this point the troubles of our voyagers ceased. They were soon able to procure passage in a Danish vessel to Copenhagen. From this city they sped homeward by rail, and once more trod German soil on the 3d of September.

Let us now retrace our steps to the northward, where we left the *Germania* struggling with the ice of East Greenland, and compare her experience with that of her unhappy consort.

To be separated for a short time from the sister-ship under existing circumstances, caused no uneasiness; so that at noon of the day that the *Hansa* disappeared in the fog, the *Germania* set all sail, but soon striking upon ice, was obliged to turn. The horizon was eagerly scanned for the *Hansa*, but without success. A whaling vessel, however, was discovered, and this last opportunity of sending letters home was eagerly embraced. The ship was found to be the *Bienenkorb* of Bremerhaven.

"On her deck, confined in a large cage, was a bear and her two cubs; fortunately for them, on board a whaler they were not likely to want for food. One would think that a creature so powerful and active could never be taken alive, but on its hunting expeditions among the drift-ice, it frequently trusts itself to the water, and here, in spite of its endurance, man is more active and clever, and with a well-managed boat, a lucky cast of the noose generally falls on the neck of the swimming bear, when, half-dragged and half-swimming, he is hoisted on deck like any other animal, the noose round its neck being a guarantee for its good behavior. On their return they are generally sold to some menagerie or zoological garden, the price of a full-grown bear being 100 thalers (75 American dollars)."

When the *Hansa* disappeared in the fog, the *Germania* set all sail, but soon struck ice and could not proceed any farther. Strong northwesterly winds prevailed, which delayed the vessel's progress toward the coast. The easterly winds, on the other hand, drove the ice toward the shore, which thus became so packed that it was impossible to reach the mainland. Several weeks were spent in meeting these obstacles, but the efforts of the ship's company were at last rewarded, and on the 5th of August they planted their flag on Greenland soil.

The group of islands which they had now reached, known as the Pendulum Islands, were first discovered by Clavering, in 1823. Far to the north was seen Shannon Island, the largest of the coast islands of Greenland, while southward lay Sabine Island, only a few miles from the mainland. Along

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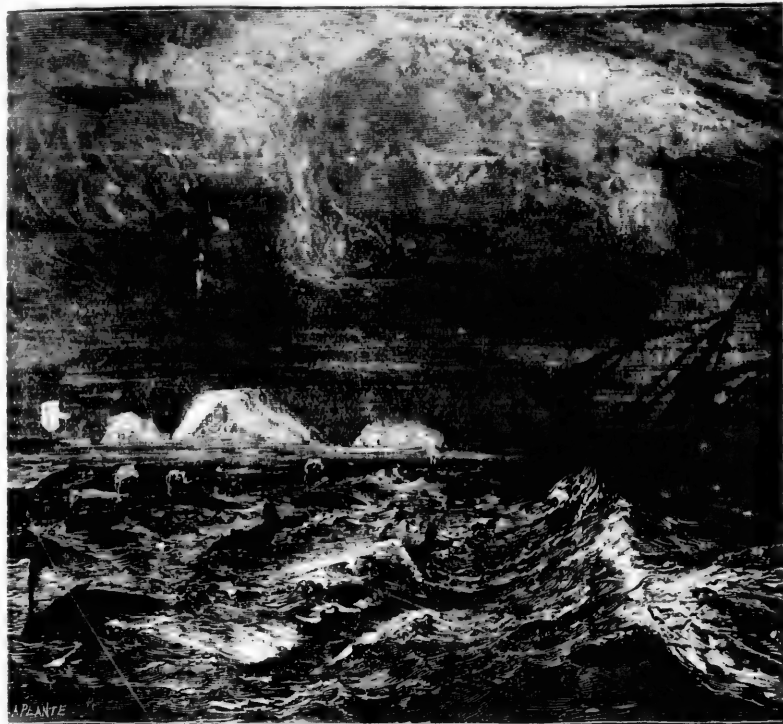


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these islands the expedition hoped to make its way northward, after having, according to their instructions, sought for and marked the position of Sabine's observatory.

The straits between Sabine Island and the mainland, and also between the several islands, were completely blocked with what appeared to be all land ice. Farther on, between Shannon Island and the mainland, as far as the eye could reach, the land was firm, and the conclusion was soon reached that there



HUNTING THE WHALE.

would be no breaking up that year. Along the coast, then, advance was impossible, and the only practicable way remaining was along the eastern side of Shannon Island.

"The question," says Koldewey, "has been raised several times, especially among inland people, as to why, being unable to advance along the land-ice, I did not re-enter the pack and work my way through it northward, and, in a higher latitude, again try to reach the coast. This is opposed to all expe-

rience; it has long been known that in a stream of heavy ice, in fact, in the so-called pack, never, nor at any place, with the strongest and best steamer, has any considerable progress been made without the support of the coast, or the coast islands. Had I wished to have reached the coast at a more northerly point, I should have had to penetrate the ice-barrier, again to steer along the northern border, and force my way into the pack once more in 78° . Such a proceeding would certainly never have been followed by the desired result, and it would have been unjustifiable to give up a basis reached with so much trouble, to follow a phantom."

After some fruitless attempts to make their way along the coast in the *Germania*, the party returned and found winter-quarters on Sabine Island, a few miles to the south and west of Pendulum Island, the land which they had at first reached. It was now planned to devote the winter to sledge-journeys. The first of these was organized at once, and was ready to start on the 14th of September. As on the departure from home the general expectation was that the greatest and most substantial discoveries must be made with the ship, their instructions spoke only of probable glacier excursions to the interior of the country, and not of extensive sledge-journeys along the coast and the banks of the Fiord. For the particular necessities of these journeys, therefore, no provision was made at the outfitting in Bremen, and the sledge apparatus (tents, coverings, and so on) was not quite what was needed.

They had learned from experience during the summer that the round tent with a pole in the centre, which they had brought from Bremen, was not practically useful; it was, therefore, changed into a four-cornered one, and provided with a roof. At each corner a pole was placed perpendicularly, and fastened by ropes held and propped up with stones. Their further apparatus consisted of necessary woollen coverings (for they had not yet taken to furs), provisions for eight days, of instruments, notably the theodolite, that essential in all coast surveys, and the customary barometer and thermometer.

The sledges, which carried about six hundred-weight, were drawn by six men, the captain, First Lieutenant Payer, Trautwitz, Krauschner, Kleutzner, and Ellinger, travelling with comparative ease over the almost snowless ice.

Fligely Fiord was explored and surveyed up to where its

inland boundary becomes a part of the rugged mainland beyond. On Kuhn Island Lieutenant Payer noticed a stone of exceedingly light color, which on the south side of the island formed solid overhanging crystals, to at least 2,000 feet high. Leaving the sledge, to his great astonishment he stumbled upon a layer of coal, its strata alternating with sandstone. Further investigations proved the existence of the carboniferous deposit in large quantities—possibly a useful factor in the future development or subjugation of East Greenland. The party soon returned to the ship, having walked a distance of 133 miles.

The months of September and October were spent in making preparations for the coming winter. The *Germania* was released from the icy bands which the early fall had cast about her, and was drawn closer to the body of Sabine Island, where, moored in a convenient bay, she could fearlessly withstand the shocks common to vessels wintering within the Arctic circle. On the 11th of October the ship was surrounded with a wall made of blocks of ice frozen together, and a sort of breakwater or boundary to the little harbor was constructed of the same material.

The winters spent by most American and British explorers in Arctic regions have been somewhat ameliorated by companionship with natives. The consciousness that other human beings can and do live in these desolated regions is a great source of comfort to sojourners in the north, especially when this knowledge is gained by actual contact with the denizens of the ice. Up to this point, however, our explorers had seen no trace of natives, nor indeed any signs of their having formerly occupied this portion of Greenland. The conclusion, therefore, was that the Esquimaux had either deserted their former abodes, or had become extinct. Clavering, in 1823, had found an Esquimaux settlement on the island bearing his name, but both natives and their habitations had now disappeared. A few skeletons and rude implements alone remained to tell the story of the decayed community.

Fall, winter, and spring found the voyagers usefully employed in exploring and surveying the fiords and gulfs of East Greenland, in taking magnetic readings, and in compiling tabulated statements of their scientific discoveries. The absence of dogs and reindeer made their labors very severe. Supplies, tents, instruments, all the paraphernalia of an Arctic

sledge-journey had to be dragged through the snow by the men themselves, the officers participating in this labor with appropriate enthusiasm. In this way several degrees of the eastern wall of the continent of Greenland were accurately explored and laid down.

It is probable that no expedition has had so varied and thrilling an experience with the animal life of the north as the party of our present narration. Almost no journey was undertaken without more or less danger from the immense bears which inhabit these regions, and sometimes the creatures approached the vessel itself with great boldness. An incident occurred on the 6th of March, in which a valued mem-



ATTACKED BY BEARS.

ber of the expedition nearly lost his life from the boldness of one of these beasts.

"We were sitting," writes Lieutenant Payer, "fortunately silent in the cabin, when Koldewey suddenly heard a faint cry for help. We all hurriedly tumbled up the companion-ladder to the deck, when an exclamation from Børgen, 'A bear is carrying me off,' struck painfully on our ears.

"It was quite dark; we could scarcely see anything, but we made directly for the quarter whence the cry proceeded, armed with poles, weapons, etc., over hummocks and drifts, when an alarm shot which we fired into the air seemed to make some impression, as the bear dropped his prey, and ran forward a few paces. He turned again, however, dragging

his victim over the broken shore-ice, close to a field which stretched in a southerly direction. All depended upon our coming up with him before he should reach this field, as he would carry his prey over the open plain with the speed of a horse, and thus escape. We succeeded. The bear turned upon us for a moment, and then, scared by our continuous fire, let fall his prey.

"We lifted our poor comrade upon the ice to bear him to his cabin, a task which was rendered difficult by the slippery and uneven surface of the ice. But after we had gone a little way, Börger implored us to make as much haste as possible. On procuring a light, the coldest nature would have been shocked by the spectacle which poor Börger presented. The bear had torn his scalp in several places, and he had received several injuries in other parts of his body."

As spring advanced, the crew of the *Germania* made preparations for their homeward journey. The vessel, so long a prisoner in icy chains, became free about the first of July, and the engine being repaired as well as circumstances would permit, some cruising was done as a finishing touch to the work of the season. After examining Shannon Island and vicinity they departed for Germany, where they arrived on the 11th of September, after an uneventful voyage of three weeks.

CHAPTER X.

THE AUSTRIAN EXPEDITION.

Weyprecht and Payer set out in the *Tegetthoff*—Great Discoveries—Fall of a Sledge—Franz Joseph's Land—March to the Sea—Rescued by a Russian Whaler—The Results of the Expeditions.

THE failure of the German Expedition of Koldewey directed the attention of after navigators away from the ice-packs of Greenland to the more open seas of Nova Zembla. Although for many reasons, among them her comparatively inland position and political relations, the government of Austria had been prevented from taking any active part in the great geographical problems of the times, an interest in polar researches gradually developed into a determination to send her flag upon the peaceful quest of new discoveries in the frozen north. A large-hearted nobleman, Count Nilczek, contributed 40,000 florins to such an enterprise, thus not only confirming but endowing the resolution. In order, however, not to waste a large amount of money and labor upon an impracticable scheme, it was determined to send out a so-called pioneer expedition under the joint command of Lieutenants Payer and Weyprecht. The knowledge and experience thus gained induced the government to send out another vessel with a more extensive outfit to spend, as the need might be, two or more winters in the Arctic seas.

Both of the officers in whose charge the enterprise was given were men of sterling qualities and undoubted ability. Weyprecht had been given the command of one of the German expeditions, but a fit of sickness had prevented his carrying out the plan which made him the commander of the party. Lieutenant Payer has already been mentioned as a participator in the German expedition which returned in 1870. Having also been previously employed in the survey of the peaks and glaciers of the Alps, he was the better prepared to enter upon a life of active service in the snows and hummocks of Nova Zembla. He shines as the historian of the expedition, his

descriptions of Arctic scenes and experiences being excelled only by those of Kane in vivid and graphic character.

The pioneer expedition was to sail in June, 1871, and return in September of the same year. In order to reduce expenses, so far as possible, a light sailing vessel, the *Isbjörn*, was chartered and manned at a trifling cost. This vessel was fifty-five feet long, seventeen feet broad, and had a draught of six feet, with a capacity of fifty tons. She was owned and commanded by the skipper, Kjelsen, and had as a crew a harpooner, four sailors, a carpenter and a cook—all of whom were Norwegians.

The voyage of the *Isbjörn*, though without thrilling incident, or independent geographical results of importance, formed the foundation of several important inferences bearing upon the propriety of another and more pretentious voyage. The following are the most important of the conclusions reached:

1. The Nova Zembla sea was not filled with impenetrable ice, like that part of the ocean contiguous to Greenland; on the contrary, observation and report showed it to be open every year, probably up to 78° north latitude, and connected with the Sea of Kara, which was also thought to be unusually free from ice.

2. The time most favorable for navigation in this sea falls at the end of August, and lasts during the month of September—this period being considered as embracing the minimum of ice.

3. The Nova Zembla sea was found to be shallow—geologically, a connection with, and a continuation of, the great plains of Siberia. In its extreme north its depth was only 100 fathoms.

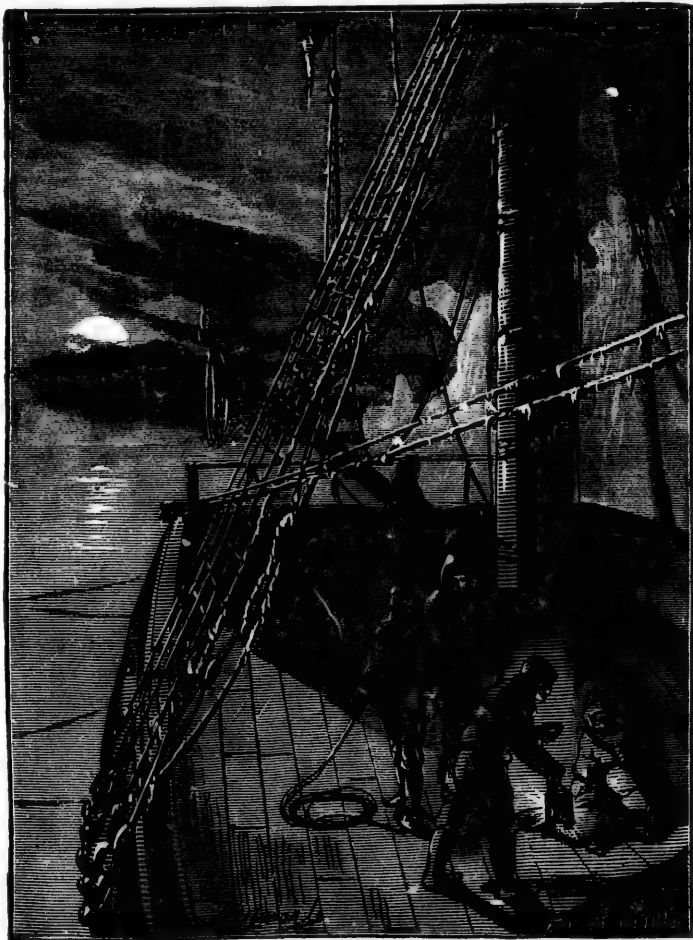
4. The expeditions of the past and present centuries, which attempted to penetrate by the northwest coast of Nova Zembla, failed because they were upon the place of observation before the time, and also, because they lacked steam.

5. How far the Gulf Stream had any share or influence in the favorable condition for the navigation of the Eastern Polar Sea, could not yet be positively determined, but the state of the ice, the observations upon its temperature and color, and the character of the observed animal life, seemed to testify in favor of the action of this current in those regions.

These conclusions seemed to justify the determination to push the proposed project of a prolonged voyage of dis-

covery, and it was thus that the Austro-Hungarian expedition originated.

It was the plan of those who had the expedition in hand to penetrate east and north during the latter half of August, when the north coast of the great island of Nova Zembla is



ON BOARD OF THE TEGETHOFF.

free from ice. The places for wintering were left undetermined; they were to be chosen according to circumstances of need or progress. In case of the loss of the ship the expedition was to endeavor to reach the coast of Siberia by

means of boats, and then to gain the interior by one of the gigantic water-courses of Northern Asia. No connection with Europe was to be depended on. Payer well says: "The motives of an undertaking so long and laborious cannot be found in the mere love of distinction or adventure. The object must not be the admiration of men, but the extension of the domain of knowledge. The grandeur of one's purpose alone can support him, for otherwise the dreary void of things without can only be an image of the void within."

The ship chosen for this principal voyage was the Tegetthoff—a steamship of 220 tons burden, carrying an engine of 100 horse-power. It was fitted with provisions and fuel for two years and a half, but was overloaded by about thirty tons, so that the available space was much taken up. On the 13th of June, 1872, the expedition set out to cross the North Sea, and reach the coast of Norway, where the last repairs were to be made, and the last adieus exchanged with European brethren. The crew numbered twenty-four, and embraced Germans, Italians and Hungarians, though Italian was the language in which the orders were given.

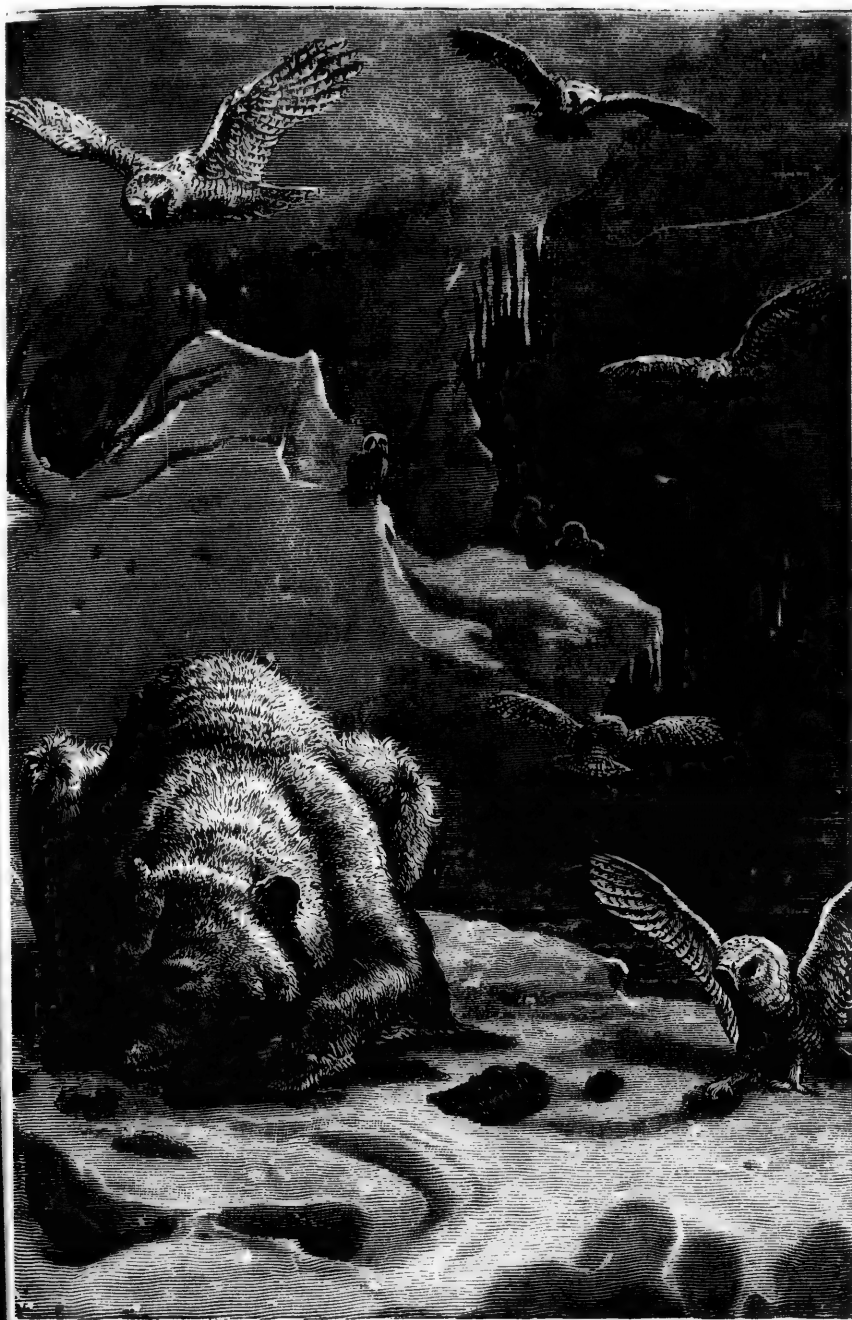
After a stop of some days on the Norway coast and the Loffoden Islands, the Tegetthoff was at last fairly on her way to her long abode among the icebergs of Nova Zembla. The vessel soon came upon scenes strange and unfamiliar to most of the crew on board. As they came into the region of ice the temperature rapidly lowered. Fogs arose in the distance from the leads in the ice-field, and snowstorms alternated with cloudless skies and genial sun. Far to the north was observed the "ice-blink"—a shining band of light in the horizon—always a faithful monitor of solid ice, of whose radiating power it is a portrayal. There is said to be no more solemn sound than that made by the action upon the ice of the elements of thaw and frost, and no pictures more sad and ghostly than the procession of icebergs floating "like huge white biers toward the south." Great falls of thaw-water flowed down the sides of the icebergs, sometimes rending them with a noise as of thunder by their constant wearing.

But when the sun came out the fogs disappeared toward the horizon, and the whole scene was bathed in rosy and golden splendor, the ice-crystals flashing like diamonds in the flood of light. Occasionally a whale would rise out of the water like a great black mountain, and then diving deep

beneath the surface make the ocean tumultuous with his awkward gambols. The icebergs presented some curious shapes. Some were chiseled as if by a trained sculptor into fantastic forms of Gothic architecture, with quaint little peaks and towers, and grotesque gables. Others represented mammoth structures supported by regular columns, apparently of solid glass. Rarely were the regular prisms, so common in the North Atlantic, observed in these Arctic Seas. Such were some of the sights which greeted our voyagers as they entered the Polar Ocean.

They had sailed over one ice-hole, and now again a broad and lofty barrier loomed up before them. They succeeded in forcing their way into it, but after using all steam of which their vessel was capable, they found the Tegetthoff actually beset, and the floes crowding together gave an unbroken field for miles around. On August 1st the vessel was still beset by the ice, and there being a complete calm no efforts to release her were availing. They were now in latitude $74^{\circ} 39'$, longitude 53° . At length, on the 2d, they broke through the ice which separated them from the open water around Nova Zembla, and penetrated about twenty miles towards the coast. A belt of ice 105 miles broad lay behind them, while before them rose the mountainous coast of Nova Zembla. Sailing and steaming on along the coast of Nova Zembla toward the north, they came on the 9th of August to another ice-barrier, in latitude about $75^{\circ} 30'$ north. In the neighborhood of the Pankratjew Islands the crew of the Tegetthoff were surprised to descry a ship on the horizon, which they soon recognized as their old friend, the Isbjörn. It was a matter of the greater astonishment that a sailing vessel should have followed a ship which, only with the aid of steam, and even thus with great difficulty, had been able to penetrate so far in the icy seas of the frigid zone. The object of their friends of the Isbjörn was to establish a depot of provisions at Cape Nassau, at whatever risk to themselves. The two ships remained together until the 20th of August, when they parted company, the Tegetthoff steaming away to the north, and the Isbjörn soon disappearing in the mist that arose from the more southern water.

On the evening of this day, the 20th, a barrier of ice stopped all further progress. As usual, the ship was anchored to a floe, and awaited the parting of the ice. "Omin-



WINTER SCENE IN NORTH GREENLAND.—DEATH OF THE POLAR BEAR.

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ous," says Payer, "were the events of that day, for immediately after we had made the Tegetthoff fast to that floe, the ice closed in upon us from all sides, and we became prisoners in its grasp. No water was to be seen around us, and *never again were we destined to see our vessel in water.*"

September came on with its increasing cold; October opened with its really wintry weather, and yet no signs of release. The ship, as firmly fastened as with iron bands, drifted northward with the floe which formed its prison.

Thus far no harm had immediately threatened the Tegetthoff and her crew, but the 13th of October was destined to bring new and exciting experiences. In the morning of that day, as the men sat at breakfast, the floe to which the vessel was attached burst asunder directly below them.

"Rushing on deck," says Payer, "we discovered that we were surrounded and squeezed by the ice; the after part of the ship was already nipped and pressed, and the rudder, which was the first to encounter its assault, shook and groaned; but as its great weight did not permit of its being shipped, we were content to lash it firmly. Noise and confusion reigned supreme, and step by step destruction drew nigh in the crushing together of the fields of ice."

The long night and its fearful cold was before them, and they were drifting they knew not whither. Daily, for one hundred and thirty days, they were destined to experience those terrible oncomings of the ice. They kept everything in readiness for retreat from the ship in case the worst came to the worst. Their sledges were loaded, their boats were manned, and their clothing and provisions were distributed. They slept in their wet, frozen garments, expecting to be called up at any time and driven forth on the ice. But whither should they go? The sea about them was lifting and grinding far beyond the view. Great hummocks danced and whirled, overturning at times with tremendous force, while chasms opened on every hand, threatening to swallow up any sledge, or boat, or person, venturing on the uncertain surface. It was fortunate that these first encounters with the ice occurred while it was yet light. Had these assaults surprised them amid the polar darkness, confusion and disorder would have taken the place of the calm preparations they were now able to make.

The pressure meanwhile continuing, it was thought best to

make some kind of a habitation upon a firmer floe, to which they might betake themselves in an emergency. Armed and provided with lanterns they removed two boats, one hundred and fifty logs of wood, fifty planks, and a supply of coal, to the port side of the vessel, and there built their house of refuge. But even this hope might fail them. A storm might carry away the planks which formed its roof, fire might consume the combustible substance of its walls, and at any time



TRANSPORTING WOOD ON SLEDGES.

a fissure might open from beneath and swallow up the whole community.

The winter of 1872-73 slowly crept away, and the sun, by its reappearance, gave promise of summer. Summer came, but the months of May and June, in temperate climates the glad harbingers of growth and life, brought no relief to the waiting travellers. "Nichts als Eis" (nothing but ice) was the oft-repeated answer of those who eagerly scanned the horizon in every direction. The second summer of the voy-

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age had come and nearly gone. It had begun with promise of liberation, but the time of greatest heat had gone by, and no sign of the predicted release had come. The idea of discoveries had utterly passed out of the minds of the explorers, and yet discoveries beyond their utmost expectations were awaiting them.

August 30th brought them, in latitude nearly 80°, a joyful surprise. "At mid-day," says Payer, "as we were leaning on the bulwarks of the ship, and scanning the gliding mists, through which the rays of the sun broke ever and anon, a wall of mist, lifting itself up suddenly, revealed to us afar off in the northwest the outlines of bold rocks, which in a few minutes seemed to grow into a radiant Alpine land. At first we all stood transfixed, and hardly believed what we saw. Then, carried away by the reality of our good fortune, we burst forth into shouts of joy—'Land, land, land at last!' . . . For thousands of years this land had lain buried from the knowledge of men, and now its discovery had fallen into the lap of a small band, themselves almost lost to the world, who, far from their home, remembered the homage due to their sovereign, and gave to the newly discovered territory the name, Kaiser Franz-Joseph's land."

The fall and winter of the present year were occupied in determining more fully the extent and configuration of the island or Arctic continent just found. This work was conducted chiefly by means of sledge journeys to and over the rough surface of the country which they had dignified with the name of their emperor. One experience in the fissures of what was named Middendorf Glacier is especially worthy of note.

The party after a brief halt were just setting out again, when the snow gave way beneath the sledge-runners, and driver, dogs, and vehicle were precipitated into some unknown depth below. Payer first heard the confused shouting of the man, mingled with the barking and howling of the dogs from the bottom of the crevasse, many feet below. "All this," says he, "was the impression of a moment, while I felt myself dragged backward by the rope. Staggering back, and seeing the dark abyss beneath me, I could not doubt that I should be precipitated into it the next instant. A wonderful providence arrested the fall of the sledge; at a depth of about thirty feet it stuck just between the sides of the crevasse, just as I was being dragged to the abyss by its weight. The

sledge having jammed itself in, I lay on my stomach close to the awful brink: the rope which attached me to the sledge tightly strained, and cutting deeply into the snow."

By incredible tact and perseverance Payer at last freed himself from the sledge, and set about recovering the store of lost provisions, the manuscripts, which could never be replaced, and above all, about the rescue of the fallen comrade who was the "pride and gem of the party." Being the only one of the party accustomed to glaciers, Payer was of necessity almost alone in his exertions. Rushing back to the tent where most of the men had remained, he hurriedly explained what had happened, and all hastened to the spot of the disaster, leaving the tent and stores unwatched. They found their poor comrade nearly dead from the cold, but sufficiently conscious to be pulled to the top of the ice-cliff over which he had fallen. The dogs were found uninjured and quietly sleeping near him.

Franz-Joseph's Land was found to be almost as large as Spitzbergen, and to consist of two main masses—Wilczek Land on the east, and Zichy Land on the west—between which runs a broad stretch of sea, of ice, called Austria Sound. At the time of this exploration the sound was covered with ice for the most part not more than a year in growth, crossed in many places by fissures, and piled up with huge hummocks. The fact that here many icebergs were seen, which had not been the case in the Nova Zembla seas, warranted the supposition that they floated away from the ice-packs in a northerly direction.

The experience of two winters in the ice had forced the party to the conclusion that the liberation of the Tegetthoff was too remote for them to hope to save themselves by navigating the path over which they had come by its aid. Her abandonment was therefore universally agreed on, and the 20th of May, the very day on which, in 1854, Kane had left the Advance on the coast of Greenland, was chosen for the first steps of their present enterprise. Their stock of instruments, which had done them such good service, together with the little museum, which all had taken so much pride in enlarging, had to be abandoned, as the journey southward to the open sea could only be made by relieving the men and dogs of everything except absolute essentials.

Boats, sledges, everything that could be taken, were at last





KAISER FRANZ-JOSEPH'S LAND.

removed, and the march begun. For the first few days the burdens had to be dragged over hummocks and through fissures, without even the variety of water upon which to launch the boats. In a short time, however, narrow leads appeared, produced by the advancing summer and a fortunate combination of other circumstances, into which the boats were placed, and a sort of doubtful navigation was begun. But these leads were limited, and great masses of ice must be continually thrust out of the way. Moreover, a south wind arose which tended to destroy what progress they had been able to make, so that after a lapse of nearly two months of indescribable efforts *the distance between them and the ship was not more than nine English miles.* It was a joyful day for our explorers when at last, on the 15th of August, in latitude 77° 49', they bade farewell to the frozen ocean, and launched their barks on the more genial waters of the Nova Zembla Sea. There being no room for the dogs in the boats, nor other possible means of conveying them, it was thought humane to kill them, which was done to the infinite sorrow of the entire party.

The problem of their rescue was now simple compared with the difficulties which they had just successfully combated. It was not, however, until they had reached and passed the Admiralty Peninsula, on the west coast of Nova Zembla, and were nearing Ganse Land toward its southern border, that the welcome sight of a ship greeted their longing eyes. Here they met on the 24th of August two Russian vessels cruising for fish and reindeer on the shores of Nova Zembla. The services of one of these vessels were readily engaged, and the long-suffering crew were soon on their way to Norway, after a ninety-six days' experience in the open air. On the 3d of September they landed at Vardö, on the Norwegian coast, and on the 5th embarked for Hamburg, where they arrived amid the congratulations and applause of thousands of friends and countrymen.

CHAPTER XI.

EXPEDITION OF CAPTAIN GEORGE NARES.

The ships *Alert* and *Discovery*—Death from Exposure—Markham's Sledge Journey—He reaches the Highest Point attained thus far—Lieutenant Schwatka's Expedition—In King William's Land—Relics of Sir John Franklin Discovered—The Records of McClintock Found—Safe Return.

ANOTHER Arctic expedition, consisting of the ships *Alert* and *Discovery*, under Captain Sir George Nares, Commander A. H. Markham and Captain H. F. Stephenson, was sent out by the British Geographical Society in the year 1875. The officers and men of both vessels numbered 120, many of whom had seen Arctic service as whalers or explorers. The *Valorous* accompanied them to Disco Island as store-ship, and having there transferred her surplus stores to the other two, she left for home July 16th, 1875.

On the voyage to Disco they had encountered much loose ice off Cape Farewell, and many heavy gales, in which they lost two of their whale-boats. Leaving Disco on the 22d, the *Alert* and *Discovery* steamed across Baffin Bay to the north-west instead of hugging the Greenland shore through Melville Bay, and struck the great central ice-pack July 24th. In thirty-four hours they succeeded in boring through the pack into open water—a feat never before performed, and which the Greenland masters declared “would ne’er be credited at Peterhead.” It helped to prove the superiority of steam-power for Arctic navigation. Reaching the vicinity of Cape York many icebergs were seen aground and closely crowded, indicating that they would perhaps not have fared so well had they taken the old route through Melville Bay, and around that cape. Pushing north they soon arrived at Carey Islands, where they landed and established a depot of supplies, depositing the usual record under a cairn. Passing Littleton Island, where they left a record, and Port Foulke, which Nares styles “the Elysium of the Arctic regions,” they made for Cape Sa-

bine, the easternmost promontory of the Ellesmere Land of Inglefield, in $78^{\circ} 45'$. Off that point, July 30th, they saw the ice in great quantities, but in the middle of Smith's Sound it consisted of detached floes, five or six feet thick, with occasionally an old floe of twice that thickness, but much decayed, and presenting no serious obstacle to their onward progress. At length, however, their way was blocked by impenetrable ice, and they were detained three days in Payer Harbor,



SIR GEORGE NARES.

awaiting a practicable opening. Several fruitless attempts were made to bore through, but at last success crowned their efforts, and on the 4th of August they forced their way through twenty miles of Hayes Sound. Soon, however, they got entangled in the pack, making but little headway, and finally were completely beset, barely escaping collision with a huge iceberg, and finding it necessary to unship their rudders. With great labor, and amid many dangers for three weeks

longer in Kennedy Channel, they reached Cape Lieber, Hayes' limit of 1860, on the 24th of August, and entered Lady Franklin Sound.

Here in the shelter of an island was found a good harbor, perfectly suitable for winter-quarters; and to enhance their good fortune, they saw on the next morning a herd of nine musk-oxen peacefully cropping the fresh and short-lived Arctic vegetation, all of which were killed, forming a very seasonable addition to their stores, notwithstanding the flavor "was so very musk." Before the 10th of October they had shot thirty-two of them, and had at one time over three thousand pounds of their frozen flesh hanging up. The Discovery was left here, remaining frozen in for ten and a half months. Their first care was to take ashore and deposit provisions for six months to guard against the contingency of disaster to the ship by fire or otherwise during her detention. Snow-walls were then constructed around her after the now well-known type, but heavier than usual, being made fifteen to twenty feet thick. These precautions, with the ordinary provisions for heat, kept the temperature of the lower deck at 48° to 56° , throughout the winter. The period of darkness, that is, absence of sunlight, set in on the 10th of October and lasted 135 days.

Leaving Stephenson and his men busy with their preparations for winter, Nares pushed on in the Alert, and on the 31st of August reached latitude $82^{\circ} 24'$, in Robeson Channel—the highest point ever attained by ship, and only 21' short of Parry's sledge limit, $82^{\circ} 45'$ north of Spitzbergen. In this channel the sea-ice approached the land-ice so close as to leave but a narrow waterway, and off Cape Sheridan they closed together, completely locking the northern entrance, or exit, into the polar sea. Along the coast a jagged parapet of ice fringed the shelving ledges, rising to an average height of about twenty feet, interrupted at intervals by ravines. Having rounded the northeast point of Grant Land, he found himself where Hayes had been so anxious to reach, but instead of the Open Polar Sea of that navigator he found the "Sea of Ancient Ice," impenetrable and forbidding. The ice was of unusual age and thickness; for instead of the five or six feet of the common floe, and the ten or twelve of the old floes hitherto encountered, it presented a front of fifteen or more feet above water, and a total of eighty to one hundred

and twenty feet—resembling a connected chain of low icebergs rather than the floes or packs of more southern latitudes. In the shelter of such ice, where the submerged portion, extending to the land, left a sufficient waterway for the ship, Nares found safe though not inviting winter-quarters; and here they were soon frozen in by the newly formed shore-ice.

While most of the ship's company were briefly engaged in the usual labors for the safety of the ship and stores Lieutenant P. Aldrich, accompanied by Adam Ayles, set out September 21st, with two dog-sledges—dogs and sledges for the expedition had been secured at Disco—under orders to pioneer a route round Cape Joseph Henry, on the north side of Grant Land, for a larger party which was to follow. Four days later, Commander Markham, with Lieutenants A. A. C. Parr and W. H. May, started with three sledges to establish a depot of provisions as far to the northwestward as would be found practicable. On the 27th Aldrich and Ayles, from a mountain top two thousand feet high, in latitude $82^{\circ} 48'$, descried the wide-extending land to the northwestward as far as $83^{\circ} 7'$, with lofty mountains to the south. They returned to the Alert on the 5th of October, after an absence of fourteen days. A week later they entered on the Arctic night, the sun having disappeared below the horizon; and on the 14th Markham returned after a trip of nineteen days, having established the depot at $82^{\circ} 44'$, and tracing the coast two miles farther to what might be regarded as the exact latitude reached by Parry, elsewhere, nearly a half a century before. Markham's party comprised twenty-one men and three officers, of whom seven men and one officer returned badly frost-bitten, three so severely as to require amputation, the thermometer ranging through the trip from 15° to 22° below zero. Meanwhile, from the 2d to the 12th, Lieutenant Rawson had made an unsuccessful attempt to open communication with Captain Stephenson in Lady Franklin Sound. The ice was found impassable within nine miles of the ship, being rotten and unsafe in the channel and piled up thirty feet high on the shore, while the deep snowdrifts in the ravines made the overland route equally impracticable.

The usual efforts to amuse and instruct the ship's company were inaugurated under the auspices of the commander, who says that of fifty-five men who composed the crew of the

Alert only two were found who could not read. Besides the school for instruction there were lectures, readings, concerts, and theatrical representations, Thursday of each week being devoted to these entertainments. The first theatrical performance was given on the 18th of November, and was thus formally announced: "The Royal Arctic Theatre will be opened on Thursday next, the 18th inst., by the powerful Dramatic Company of the Hyperboreans, under the distinguished patronage of Captain Nares, the members of the Arctic Exploring Expedition, and all the nobility and gentry of the neighborhood." On the Discovery similar entertainments were given, its theatre being opened December 1st, and the plays being rendered alternately by officers and men. Each vessel had a small printing press, which was used for issuing programmes and bills of fare on occasions of great dinners. On the anniversary of the Gunpowder Plot, November 5th, they had a bonfire on the ice, and burnt Guy Fawkes in the approved style. Christmas was thus observed: "First of all, in the morning we have Christmas waits in the usual manner. A sergeant of marines, the chief boatswain's mate, and three others, went around the ship singing Christmas carols suited to the occasion, and made a special stay outside the captain's cabin. On the lower deck in the forenoon there were prayers, and after that captain and officers visited the mess in the lower deck, tasted the pudding, inspected the decorations which had been made, and so on. Then the boxes of presents by friends in England were brought out, the name of him for whom it was intended having been already fixed to each box, and the presents were then distributed by the captain. Ringing cheers, which sounded strange enough in that lone place, were given for the donors, some of them very dear indeed to the men who were so far away from their homes. Cheers were also given for the captain, and for absent comrades on the Alert. A choir was then formed, and 'The Roast Beef of Old England' had its virtues praised again. The men had their dinner at twelve o'clock, and the officers dined together at five."

"The sun reappeared on the last day of February. From November till February, with the exception of the starlight and occasional moonlight, we had been in darkness," says the chaplain, "not by any means dense, but sufficiently murky to excuse one for passing by a friend without knowing him."

And now the time for sledge-exploration was near at hand; and it became important to establish an understanding between the two ships, so as to secure concert of action. Accordingly, on the 12th of March, 1876, sub-Lieutenant Egerton and Lieutenant Rawson, accompanied by Christian Petersen, interpreter, were despatched to attempt once more to open communication with Captain Stephenson. Four days later they returned to the Alert, Petersen having completely broken down. His hands were paralyzed, and his feet so badly frozen as to require amputation, which, however, did not save him, as he died some three months later. Egerton and Rawson, accompanied by two seamen, resumed the attempt, and were successful; and communication as well as co-operation between the sledge-parties of both vessels was established.

Lieutenant Beaumont of the Discovery, in command of eight men, crossed Robeson Channel with great difficulty over the broken and moving ice, and explored the Greenland coast to latitude $82^{\circ} 18'$. Scurvy broke out among his men, and two died before reaching Polaris Bay. Beaumont pushed on to his limit, but four others succumbed soon after turning their faces to the ships. The three that were not disabled hauled the sick with the provisions on the single sledge, always making the journey twice, and often thrice, over the rough ice. "The gallant band," says Nares, "struggled manfully onward, thankful if they made one mile a day, but never losing heart." While they were thus laboring on in the heart of a frozen desert, a search party consisting of Lieutenant Rawson, Dr. Coppinger and Hans, the Esquimau, was despatched, and had the good fortune to fall in with them when the remaining assistants of Beaumont were on the point of also succumbing to the disease. The three officers had now for a time a monopoly of the hauling business, but no lives were lost, and the party reached their depot of provisions on Polaris Bay, where they well succeeded in shooting game, and the invalids soon recruited. Including a lengthened stay at that point, they were absent from the ship one hundred and thirty-two days. Lieutenant Archer surveyed Lady Franklin Sound, and found its head, sixty-five miles inland, surrounded by lofty mountains and glacier-filled valleys. Lieutenant Fulford and Dr. Coppinger explored Petermann Fiord or Bay, which also was found to terminate in a steep glacier-

front. Some good coal was found on Discovery Bay. These local trips and Beaumont's Greenland Division of Arctic exploration constituted the Discovery's quota; the Alert's men took charge of the Western and Northern Divisions. Lieutenant Aldrich, with seven men, explored two hundred and twenty miles to the west side of Grant Land, finding nothing in sight beyond but the wide-expanded sea. On his return, when met by a relief party under Lieutenant May, only one of his men was in a condition to assist in hauling four disabled comrades, while the other two feebly struggled along by the side of the sledge.

It was noticeable that the officers in all these sledge-journeys escaped the scurvy, while nearly all the men were attacked. Captain Nares was severely criticised, on the return of the expedition, for alleged neglect of sanitary precautions, in failing to provide liberal supplies of anti-scorbutic remedies on these trips; but it was learned that the same difference in health between officers and men was manifest on the vessels. Men who had not been detailed for any of these expeditions, but had all along been within reach of hygienic, medical and anti-scorbutic treatment, were also attacked, there being no less than thirty-six cases at one time on the Alert. It was therefore probably due to the generally superior physical condition and the greater self-helpfulness of the officers that the disparity was due, and the same phenomenon may be noticed in any epidemic. The better-kept men, intellectually, morally and physically, always show the smallest percentage of deaths.

The great exploring feat of the expedition was performed by Commander Markham's party. Accompanied by Lieutenant Parr, Dr. Moss and Mr. White, one of the engineers, and twenty-eight men, he set out for the north on the 3d of April. The equipment consisted of four eight-men sledges—so called because each was manned by seven men and an officer; two boats for possible navigation in northern waters; four tents, eleven feet long, and about seven feet wide; and between 1700 and 1800 pounds of provisions to each sledge. The sledges were named Marco Polo, Victoria, Bulldog and Alexandra. The costume of the men was composed of a thick woollen, blanket-like material, under a suit of duck to repel external moisture. On their feet, besides thick woollen hose, were worn blanket-wrappers and moccasins; and all

wore spectacles as a protection against snow-blindness. Each slept in a separate bag of the same heavy woollen material as the day-clothing, and the eight, in the compass of the eleven feet of tent, which was of the same warm material. Breakfast



STARTING ON A SLEDGE JOURNEY.

was taken before quitting the bags, and consisted of a pannikin of cocoa, some pemmican and biscuit. After five hours' travel a lunch of biscuit, with four ounces of bacon and a pannikin of hot tea, was taken; and at the close of the day's journey, varying from ten to twelve hours, when the tents

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were pitched, and all, except the acting cooks, snugly ensconced in their bags, a supper of pemmican and tea was served. With the pemmican was always mixed a certain proportion of preserved potatoes.

For the first few days fair progress was made, though from the outset the way was rough and difficult, and the temperature rather low for comfort—on the 6th it was 35° below zero. On reaching the depot of provisions at Cape Joseph Henry, established before the close of the previous season, the party was rearranged. Fifteen men, with three sledges, and a total weight in provisions and supplies of 6,079 pounds, accompanied Markham and Parr over the high, rough hummocks of the "Sea of Ancient Ice." On the 10th, "Distance made good," says Markham, "one mile; distance marched, seven." "On the 12th it was $1\frac{1}{2}$ made good to nine travelled; the 17th, $1\frac{1}{4}$ to nine; and on the 18th, one to ten, and taking ten hours to do it." "Course and distance made good, north, four miles; distance marched, thirteen miles," and similar entries mark the most favorable proportions. But often only a single sledge could be dragged over the hummocks at a time with their combined force, thus requiring five successive trips to cover the same piece of ground; and this was sometimes varied by two additional trips to carry forward a few disabled comrades. On the 19th it was deemed advisable to lighten the burden by leaving one of the boats behind—it was not likely they should need more than one for all the "Open Polar Sea" they would fall in with. This weighed about 800 pounds, but two of the men were prostrated by the scurvy, and had to take its place. "Before quitting the boat, an oar was lashed to its mast, and the mast stepped, yard hoisted, and decorated with some old clothes," to serve as a signal whereby to reach it on their return.

With the hummocks recurring every hundred yards or so, varying only in height, and the intermediate spaces covered with drifted snow-ridges, and the temperature almost constantly below zero, their progress was necessarily slow—very slow, snail-like and tortuous. "The journey," says Nares, "was consequently an incessant battle to overcome ever-recurring obstacles, each hard-worn success stimulating them for the next struggle. A passage-way had always to be cut through the squeezed-up ice with pickaxes, an extra one being carried for the purpose, and an incline picked out of the per-

pendicular side of the high floes, or roadway built up, before the sledges—generally one at a time—could be brought on. Instead of advancing with a steady walk, the usual means of progression, more than half of each day was expended by the whole party facing the sledge and pulling it forward a few feet at a time." On the last day of April they were compelled to halt in the presence of a new enemy, the fog, which endangered their becoming entangled in a labyrinth of hummocks. This weary work was continued through the first third of May, with a constant increase in the number of the sick, when it was decided to leave them behind, while the stronger ones were to make a final push for the highest point attainable. A camp was established for the invalids, provisions and supplies on the 11th, and left in charge of the cooks. On the morning of the 12th, Markham and Parr, with such of the men as were still in a condition to venture forward, set out, encumbered only with a few instruments and the national colors. Markham thus relates the last advance: "We had some very severe walking, through which the labor of dragging a sledge would be interminable, and occasionally almost disappearing through cracks and fissures, until twenty minutes to noon, when a halt was called. The artificial horizon was then set up, and the flags and banners displayed, these fluttering out bravely before a southwest wind, which latter, however, was decidedly cold and unpleasant. At noon we obtained a good altitude, and proclaimed our latitude to be $83^{\circ} 20' 26''$ north, exactly three hundred and ninety-nine and one-half miles from the North Pole. The leaders, Markham and Parr, though they had reached the highest point ever attained, were no more than half content at the meagre result of so many hardships. But they were destined soon to find that the decision to return was the salvation of the party, as almost all the men were stricken down with scurvy before reaching Depot Point, near Cape Joseph Henry. By forced marches and indomitable energy they succeeded in getting the men to camp on June 7th; and while Markham watched and labored for their comfort, Parr set out for the Alert, thirty miles away. Equipped with only a walking-stick and a couple of light rations, he trudged off alone to hurry up a relief party, stimulated by the consciousness that on his exertions depended the life-chances of those he had left behind. Fortunately he proved equal to the emergency, and in twenty-



MEN OF THE ALERT IN THE EXTREME NORTH.

four hours reached the ship. Before midnight of the 8th, Captain Nares was on the way to Depot Point at the head of a relieving party. Lieutenant May, Dr. Moss and a seaman, with a light dog-sledge, were sent forward as a lightly equipped advance party, and reached the camp in fifty hours from Parr's departure. Short as had been the interval, one of the sick, George Porter, had died, and was already buried in the snow; but no other life was lost. Of the fifteen men who left Depot Point two months before with Markham and Parr, only three were able to assist in dragging the sledges back; three others struggled along behind, often falling and sometimes fainting; while nine had been utterly prostrated and had to be carried on the sledges in the tedious manner already described. They had reached seventy miles north of Grant Land over the Palæocrystic ice, as Nares called it.

Captain Nares concluded to return to England, where he arrived on the 27th of October, 1876, after an absence of sixteen months, with his ships uninjured and with only the loss of life already mentioned.

Early in the summer of 1878 Lieutenant Schwatka, U. S. A., who had taken an active interest in the subject from boyhood, asked for leave of absence from his place of duty on the plains, came to New York and asked permission to organize a search party, for the purpose of discovering the supposed records of Franklin's last voyage. After listening to his proposition, Judge Daly, of the Geographical Society, gave him all the information in his possession concerning the probable whereabouts of the missing treasures; commending him also to General Sherman, and indorsing his application to be detailed to command the exploring party. The lieutenant also conferred with Messrs. Morrison & Brown, of New York, concerning the use of a whaling vessel for the transportation of the party to the scene of their labors. Their only available ship, the *Eothen*, was at sea, but upon her arrival her owners offered her for the use of the expedition, and she was refitted in the best manner for the comfort of the party.

Prior to his departure Lieutenant Schwatka received instructions for his procedure as follows, from Mr. Morrison: "Upon your arrival at Repulse Bay you will prepare for your inland journey by building your sledges and taking such provisions as are necessary. As soon as sufficient snow is

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on the ground you will start from King William's Land and the Gulf of Boothia. Take daily observations, and whenever you discover any error in any of the charts you will correct the same, marking thereon also any new discoveries you may be fortunate enough to make." He was further admonished to carefully preserve all records found, and keep them safely in his own possession or to intrust them to his Esquimau interpreter. Finally, he was advised, even though his expedition proved a failure in its particular end, to make it a geographical success, as his facilities for doing so would be excellent.

The Eothen sailed from New York on the 19th of June, 1878, being accompanied down the bay by several tugs containing the friends and relatives of the explorers. Her officers and crew were as follows: Captain, Thomas F. Barry; Jeremiah Bomepus, chief mate; James Piepper, second mate; James Kearney, boatswain; H. Omenheuser, cooper; Frederick Woern, blacksmith; Charles Budley, carpenter, and ten seamen. The exploring party was composed of five persons: Lieutenant Frederick Schwatka, commander; Colonel W. H. Gilder, a New York correspondent; Joseph Ebierbing, Esquimau guide and interpreter; Henry E. Klietchak, civil engineer, and Frank Mellers, assistant engineer.

After leaving the investigating party at the scene of their adventures, the Eothen cruised about for whales a short time, and finally returned to New London.

Schwatka and his comrades spent the winters of 1878-79 and 1879-80 in investigating King William's Land, the supposed last resting-place of most of Franklin's men. In this work they were greatly assisted by the activity, intelligence and willingness, both of their native interpreter whom they had brought, and also of the Esquimaux of the neighborhood which they were examining. In the summer of 1880 many interesting relics of Franklin and his party were discovered. There were many pieces of wood, iron and other material, which by names marked upon them, or by other signs, were proved to have belonged to one of the two ships. Many articles with private marks were discovered. The general testimony borne by Rae in 1854 received ample confirmation, and many additional proofs of the fate of Franklin and his men were unearthed. Not only was the record of M'Clin-

tock's discovery in 1859 found where he had deposited it, but the camp of Captain Crozier, which had been found and occupied by his whole party, was discovered, with many relics of interest. There were several cooking-stoves with their accompanying copper kettles, besides clothing, blankets, canvas, iron and brass instruments, and an open grave, where was discovered a quantity of blue cloth, part of which was wrapped around a body.

On his return late in the summer of 1880, Schwatka received great homage from the American government for his discoveries, and also from the English nation, for his delicate and humane service to the remains of the lost English subjects.

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CHAPTER XII.

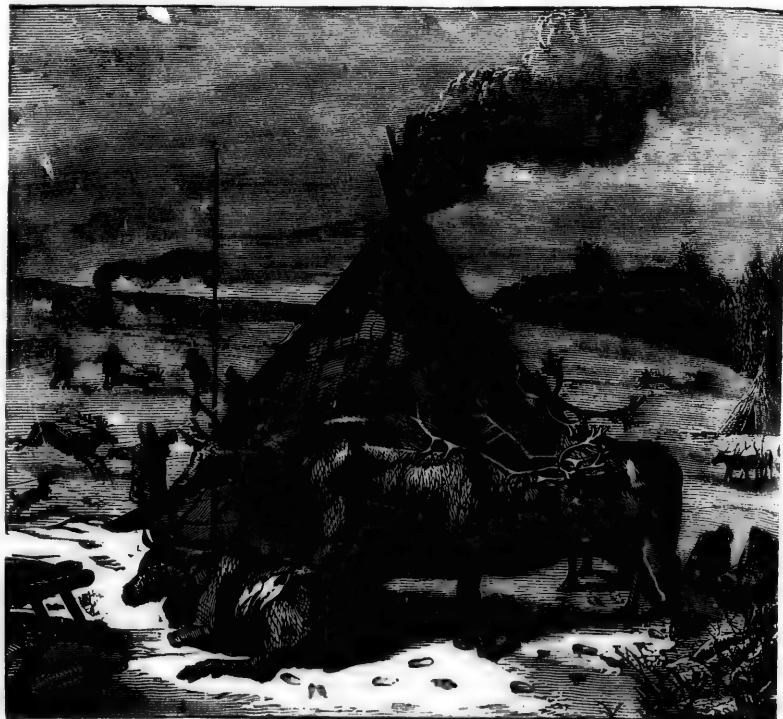
NORDENSKJÖLD'S POLAR VOYAGES.

Nordenskjöld's Numerous Polar Voyages—The Vega—An Old Problem Solved—The Northernmost Point of Asia—A Winter in the Land of the Tchuktchi—A Trip around the World—Magnificent Festivities in Honor of Nordenskjöld and his party.

ADOLF ERIC NORDENSKJÖLD is a native of Helsingfort, the capital of Russian Finland. In consequence of a toast given by him at a supper party in 1855, he was deprived by the Russian Governor-General of a small official position he held in the museum of his native city, and consequently left the country, and took service with Sweden, becoming State mineralogist in 1858, and from 1859 to 1878 took part in no less than seven Arctic expeditions, mostly as their leader. These expeditions were, to Spitzbergen in 1861 and 1864; an attempt to reach the Pole, in 1868; to Greenland, in 1870; to Spitzbergen again, in 1872-73; to the Yenisei River in Siberia, in 1875, and again in 1876. Besides these there were two Arctic voyages, in 1868 and 1871. By all these voyages the information in relation to Spitzbergen and Greenland and the adjoining seas was largely increased.

In the voyage of 1875 to the mouths of the Obi and Yenisei, Nordenskjöld landed on the 8th of August on the peninsula of Yalnial, that is, in Samoyed, Land's End, separated from Beli Ostrov or White Island by Malygin Sound. It had been reached in 1737 by Selifontov in a reindeer-sledge, and was first mentioned in the narrative of Skuratov's journey of the same year. A more southerly portion of it was traversed by Sujeff in his overland journey from Obdorsk to the Kara Sea in 1771. In the second voyage of the younger Krusenstern in the Kara Sea in 1862, when the Yermak was abandoned on the coast of this Samoyed peninsula far to the south, in latitude $69^{\circ} 54'$, the commander and crew escaped to the land, destitute of everything, but had the good fortune to fall in with a Samoyed elder, the owner of 2,000 reindeer, who took them to Obdorsk, about 600 miles distant by the

route taken. "We saw no inhabitants," says Nordenskjöld, "but everywhere along the beach numerous tracks of men—some of them barefoot—reindeer, dogs, and Samoyed sledges were visible. On the top of the strand-bank was found a place of sacrifice, consisting of forty-five bears' skulls of various ages placed in a heap, a large number of reindeer skulls, the lower jaw of a walrus, etc. From most of the bears' skulls the canine teeth were broken out, and the lower jaw



SAMOYED ENCAMPMENT.

was frequently entirely wanting. Some of the bones were overgrown with moss, and lay sunk in the earth; others had, as the adhering flesh showed, been placed there during the present year. In the middle of the heap of bones stood four erect pieces of wood. Two consisted of sticks a metre (3.28 feet) in length, with notches cut in them, serving to bear up the reindeer and bears' skulls, which were partly placed on the points of the sticks, or hung up by means of the notches,

or spitted on the sticks by four-cornered holes cut in the skulls. The two others, which clearly were the proper idols of this place of sacrifice, consisted of driftwood roots, on which some carvings had been made, to distinguish the mouth, eyes, and nose. The parts of the pieces of wood intended to represent the eyes and mouth had recently been besmeared with blood, and there still lay at the heap of bones the entrails of a newly killed reindeer. Close beside were found the remains of a fire-place, and of a midden, consisting of reindeer bones of various kinds, and the lower jaws of bears. Sailing on at some distance from the coast, and at one place passing between the shore and a long series of blocks of ground-ice, which had stranded along the coast in a depth of nine to sixteen metres ($29\frac{1}{2}$ to $52\frac{1}{2}$ feet), during the night we passed a place where five Samoyed tents were pitched, in whose neighborhood a large number of reindeer pastured."

The results of those several voyages are thus summed up by Nordenskjöld: "The exploring expeditions, which, during the recent decades, have gone out from Sweden toward the north, have long ago acquired a truly national importance, through the lively interest that has been taken in them everywhere, beyond as well as within the fatherland; through the considerable sums of money that have been spent on them by the state, and above all by private persons; through the practical school they have formed for more than thirty Swedish naturalists; through important scientific and geographical results they have yielded; and through the material for scientific research, which by them has been collected for the Swedish Royal Museum, and which has made it, in respect of Arctic natural objects, the richest in the world. To this should be added discoveries and investigations which are, or promise in the future to become, of practical importance; for example, the meteorological and hydrographical work of the expeditions; their comprehensive inquiries regarding the seal and whale fisheries in the Polar seas; the pointing out of the previously unsuspected richness in fish of the coasts of Spitzbergen; the discoveries on Bear Island and Spitzbergen of considerable strata of coal and phosphatic minerals, which are likely to be of great economic importance to neighboring countries; and, above all, the success of the two last expeditions in reaching the mouths of the large

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Siberian rivers—the Obi and Yenisei—navigable to the confines of China, whereby a problem in navigation, many centuries old, has at last been solved."

On the 22d of June, 1878, the steamer *Vega*, purchased at Bremerhaven, for the seventh and most celebrated Arctic voyage of Professor Nordenskjöld, left the harbor of Karlskrona. Besides the *Vega*, with her company of thirty per-



CUTTING ICE-DOCKS.

sons, of whom only four were seamen, the others being officers, engineers, and scientists, three other vessels which belonged to the merchant, Sibiriakoff, were at the disposal of the commander of the expedition, consisting of quite a little fleet, with the *Vega* as a sort of flag-ship. They were the steam-tender *Lena*, Christian Johannesen, captain; the steamer *Fraser*, Emil Nilsson, captain, and the sailing-vessel *Express*, under Captain Gunderson, with their respective corps of petty

officers and crews, and S. J. Seribrienkoff as supercargo, and representative of the commercial interests of the owner. The two merchantmen were to meet the Vega and her tender at Chabarova on Yugor Schar or Vaigats Sound, lying between the island of that name and the Russian mainland, which was also the appointed rendezvous of the Lena, should she get separated from the Vega. The name Yugor is derived from the old name of the adjoining portion of the continent, Jugaria, or Yugaria, the supposed intermediate seat of the Hungarians, between their departure from their original Tartar home in Central Asia and their migration southward to their present location, toward the close of the ninth century of our era.

On the 4th of July the Vega left Gothenburg, but encountering head-winds off the west coast of Norway her progress was slow, and it was not until the 17th that she reached Tromsø, where she was to take aboard the commander, and be joined by the Lena. Here they shipped three walrus-hunters, and such special Arctic equipments as reindeer skins, besides coal and water. On the 21st, about fifteen days later than intended, they set out on the regular voyage, making for Maossoe, a small island of the Northern Archipelago, where they were to have their last mail facilities. Here they were detained three days by adverse winds, instead of that many hours, as anticipated.

Leaving Maossoe on the 25th, they steamed through Margeroe Sound, between the island of that name, the northern extremity of which is known as North Cape, and the mainland of Norway. The Vega and Lena parted company the first night in a fog, but each proceeded on its way to Chabarova. The Vega was steered due east to within a few miles of the west coast of Nova Zembla, which they sighted on the 28th at $70^{\circ} 33'$ by $51^{\circ} 54'$ east, in about seventy-five hours from Maossoe. This was about midway between the Matotschin Schar, or Sound, and Yugor Schar. The Matotschin Sound divides Nova Zembla into two large islands of unequal size, the larger terminating at Barentz Land away to the north, in latitude 77° , the chief interest in which is connected with the fate of the early navigator, thus commemorated. An account of his voyage has been given in its proper place; but a fresh interest has been awakened by the recent discovery of the winter-house erected by him and his companions at Ice Haven, in Barentz Bay, on the east coast of Barentz

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Land, a few minutes north of latitude 76° . On the 9th of September, 1871, Captain Carlsen, a Norwegian, while circumnavigating Nova Zembla, discovered the house, with many interesting relics, in a remarkable state of preservation, and brought them home, whence they found their way, through the zeal of Barentz's countrymen, to the Hague, where they are carefully preserved. "No man," says Markham, "has entered the lonely dwelling where the famous discoverer sojourned during the long winter of 1596, for nearly three



BARENTZ' HOUSE.

centuries. There stood the cooking-pans over the fireplace, the old clock against the wall, the arms, the tools, the drinking-vessels, the instruments, and the books that beguiled the weary hours of that long night 275 years before. Perhaps the most touching relic is the pair of small shoes. There was a little cabin-boy among the crew, who died, as Gerrit de Vere tells us, during the winter. This accounts for the shoes having been left behind. There was a flute, too, once played by that poor boy, which still gives out a few notes."

The more southern of the twin islands of Nova Zembla is separated from Vaigats Island to the south by the Kara Part, or passage to the Kara Sea. The part of this island which was now sighted by the Vega's company is known as Ganse-land, because of the great numbers of geese and swans which breed there. By the end of June, or early in July, the greater part of Gooseland is free of snow, and soon the Arctic flora discloses all its splendor for a few weeks. Giving themselves plenty of sea-room, but in the main following the trend of the land, they proceeded to the southeast, and farther on, east-southeast, to Vaigats Island, of which they had an excellent view, the air being exceptionally clear. From the Murman Sea to the west it seemed a level, grassy plain, but on approaching the sound, low ridges were seen on the east side, which were regarded by Nordenskjöld as the last spurs of the great Ural range. They found the merchantmen awaiting them when they arrived at Chabarova on the 30th, and the Lena put in an appearance the next day. The Fraser and Express had left Vardoe Island off the northeast coast of Norway on the 13th, and had been in harbor since the 20th.

Nordenskjöld's expedition quit their anchorage off Chabarova on the 1st of August, and steamed through the sound, the Fraser towing the Express into the Kara Sea, which extends from Nova Zembla to Taimur Peninsula, receiving the waters of the Kara, Obi, Taz, and Yenisei, through the gulfs bearing the same names. It was found that "no notable portion of the mass of fresh water which these great rivers pour into the Kara Sea flows through Vaigats Sound into the Atlantic Ocean; and that, during autumn, this sea is quite available for navigation." On the 2d they met no ice; on the 3d only ice that was very open and rotten, presenting no obstacle, and in the evening arrived in sight of the large island of Beli Ostrov. The Lena had been despatched ahead with three of the naturalists, under orders to pass through the sound which separates it from the peninsula of Yalmal. On the 6th, passing Sibiriakoff Island in the mouth of the Yenisei, they anchored in Port Dickson, on Dickson Island, where they were rejoined by the Lena on the 7th.

They finally reached Taimur Sound, and on the 19th they steamed by a large, high, unbroken field of ice, extending from a small bay on the west side of the peninsula. A little farther on, they had the good fortune to find, just west of the low-

jutting promontory—or rather in the fork of it—an open bay which they named King Oscar, and in which both steamers came safely to anchor in the evening. They had nowhere met such old drift-ice as is encountered north of Spitzbergen. "We had now reached a goal," says Nordenskjöld, "which for centuries had been the object of unsuccessful struggles. For the first time a vessel lay at anchor off the northernmost cape of the Old World. No wonder, then, that the occurrence was celebrated by a display of flags, and the firing of salutes, and when we returned from our excursion on land, by festivities on board, by wine and toasts. The north point of Asia forms a low promontory, which a bay divides into two, the eastern arm projecting a little farther to the north than the western."

Both the cape and the immediate tongue of land back of it are now distinctively known as Cape Chelyuskin and Chelyuskin Peninsula, both in the honor of the Russian explorer of that name. The great Taimur Peninsula, of which this tongue and cape form the extreme northern projection, is now further divided geographically into a West and East Taimur Peninsula by the Taimur Lake and river; and it is to the eastern half that Chelyuskin Peninsula belongs.

On the night of the 28th of August the Vega and Lena parted company in the open sea, in about longitude $128^{\circ} 30'$, off Tumat Island. While they followed the coast they found open water, always at a safe distance from the land on the one hand, and the ice-pack on the other. It was therefore demonstrated that, at least in seasons as favorable as 1878, the whole voyage may be made without meeting any serious obstruction from ice. The Lena reached Yakoutsk on the 21st of September amid great rejoicings, being the first ocean steamer that had ever reached that far inland city, about 800 miles from the sea.

After parting with the Lena, as stated, the Vega kept on to the east, reaching 132° at noon, and sighting Stolbovoi Island in the afternoon. On the 1st of September they were at 150° , about one degree north of the mouth of the Indigirka, and on the 2d the temperature fell to one degree below zero. On the 3d snow began to fall, and when they arrived off Bear Islands, north of the mouth of Kolyma, both vessel and land were lightly covered with it. The channel west and south of the islands, through which they passed, was almost free of



THE VEGA IN WINTER QUARTERS.

ice, but a little farther out ice was abundant, and on the 4th, east of the islands, heavy masses were found to have drifted south, compelling the Vega to bear down nearer the coast toward the Greater Baranow Rock. Indeed, ever since doubling Sviatoi Noss, the ice seen was more like that to be met off Spitzbergen, than any they had hitherto encountered on this voyage; but no icebergs or large glacier blocks had been met or sighted. On the 5th they were off the mouth of the Baranicha, so often mentioned in the account of Wrangell's sledge-journeys. Passing the entrance to Tchaun Bay in the night, they reached Cape Schelagskoi at four o'clock on the afternoon of the 6th.

On the 12th, beyond Cape North, the Vega at last found her way blocked by the ice-pack, and turning back, found temporary refuge near the cape, where they were detained by the untoward condition of the ice until the 18th.

On the 29th, finding no lane, lead, or outlet through the pack, the Vega was moored to a mass of ground-ice, 130 feet long, 80 wide, and 20 high, which afforded a fair shelter, but no proper haven. This, however, proved to be the winter-quarters, except that later on ship and shelter were pushed by the outer ice to within seven-eighths of a mile of the coast. Soon the ice-belt which had obstructed their advance grew from six or seven to eighteen or twenty miles wide, and there was no longer any hope of getting away until the ensuing summer. Their exact position was ascertained to be in latitude $67^{\circ} 4' 49''$ north, and longitude $173^{\circ} 23' 2''$ west— 180° east, half the circumference from Greenwich, had been passed at Cape North.

During the winter months many excursions to interesting points were made by members of the expedition, by which valuable information was obtained about the country and its inhabitants, the Tschuktkhi.

At length the moment of release approached. The temperature had remained below freezing point to the middle of June. On the 14th, however, there was a sudden change to milder weather. A heavy thaw set in, and the coast land was so covered with mud and slush that all excursions had to be discontinued. But the ice which bound the ship was still so strong that the explorers did not expect to be able to leave before August. Throughout their stay there had been open water seaward, but usually at a great distance from the ship.

"On the 16th of July," says Nordenskjöld, "a heavily laden double sledge could still be driven from the vessel to the shore;" and the next day the year's ice around them began to break up, but the ground-ice was still undisturbed, and it was judged that several days would elapse before they could get clear. So the commander determined to take the steam-launch to sea, and visit some whalers reported by the natives to be off Serdze Kamen. But by 1.30 on the 18th, when almost ready to set out, there was noticed a movement of the ice which held the Vega. An hour later Palander, who was prepared for every emergency, had steam up, and in another hour the ship was free. At 3.30 she steamed away, first a little to the west to get clear of the floe, and then in the right direction, eastward for Serdze Kamen and Behring Strait, encountering no further obstruction from the ice thenceforth to the close of the voyage. The detention in winter-quarters had lasted 293 days.

In ten hours they passed Serdze Kamen, and steering thence southeast, they arrived off Cape East in Behring Strait on the morning of the 20th, and at eleven o'clock, being about midway between the Arctic and Pacific Oceans, "the Vega greeted the Old and New Worlds by a display of flags, and the firing of a Swedish salute." Thus finally was reached the goal toward which so many nations had struggled, all along from the time when Sir Hugh Willoughby, with the firing of salutes from cannon, and with hurrahs from the festive-clad seamen, in the presence of an innumerable crowd of jubilant men, certain of success, ushered in the long series of north-east voyages 326 years before.

The prevalence of fog rendered unadvisable a landing, otherwise much desired, at Diomedé Island, the famous market-place of the polar tribes, situated in the narrowest part of the straits, nearly half way between Asia and America, and probably before the time of Columbus, a station for traffic between the "Old and New Worlds." They first cast anchor in St. Lawrence Bay, where various expeditions and investigations among the tribes on the east coast of the Tchuktchi Peninsula were zealously taken up, but only for a single day, as the commander was anxious to reach a telegraph station to communicate the safety of the expedition to the king and people of Sweden, and the world at large. Steaming across to the American side they anchored in Port

Clarence, where they were soon called upon by the Esquimaux for interchange of civilities, gifts, and barter. Here they remained until the 26th, when the Vega recrossed to the Tchuktchi Peninsula, farther to the south than before, and anchored in Konyam Bay on the 28th. The mountains were high and split up into pointed summits with deep valleys still partly filled with snow; but no glaciers were seen. The inner bay was still covered with an unbroken sheet of ice, which



ATTACKED BY POLAR BEARS.

suddenly breaking up on the 30th, they beat a rather precipitate retreat, just in time to escape the last chance of conflict with the great enemy of Arctic expeditions.

Steaming away to St. Lawrence Island the Vega anchored in an open bay on the northwest coast on the 31st. Notwithstanding its very considerable size, eighty by thirty miles, the island has no good harbor, and the Vega left her exposed situation on the 2d of August. The next anchorage was made on the 14th in an almost equally exposed bay on the

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west of Behring Island. In the dreary, treeless land, where Behring and companions met nothing but desolation, sand-hills, and ravenous foxes, Nordenskjöld and party found a thriving colony of American and Russian traders, with dwelling-houses, official buildings, storehouses, a school-house, and church. Behring, Copper, and Toporkoff Islands, besides several islets and rocks, constitute the group known as Commander's Islands. "The part of Behring Island which we saw," says Nordenskjöld, "forms a high plain resting on volcanic rocks, which, however, is interrupted at many places by deep kettle valleys, the bottoms of which are generally occupied by lakes, which communicate with the sea by large or small rivers. The banks of the lakes and the slopes of the hills are covered with a luxuriant vegetation, rich in long grass and beautiful flowers; and might without difficulty feed large herds of cattle, perhaps as numerous as the herds of sea-cows that formerly pastured on its shores."

Finding here a steamer of the Alaska Company bound for Petropaulovsky, Nordenskjöld was somewhat relieved of his anxiety to reach a telegraph station, whence to despatch news of the safety of the expedition. After a short but pleasant sojourn at the civilized colony, they left their moorings on the 19th, and on the 25th struck the Gulf Stream of the Pacific. On the 2d of September, at 9.30 in the evening, the Vega anchored in the harbor of Yokohama, Japan; and Nordenskjöld at length had access to a telegraph station, and also a little experience of official obstruction in getting his messages off. Here he learned that a relief steamer, called by his name, had been sent forward by his friend Sibiriakoff, and had been stranded on the coast of Yesso, fortunately without loss of life, and with a fair prospect of being got off safely.

From here the expedition returned to Sweden *via* Ceylon, Point de Galle, Aden, the Suez Canal, Naples, Gibraltar, Boulogne, Paris, and Copenhagen, where they were honored by magnificent receptions and festivities.

CHAPTER XIII.

THE UNFORTUNATE EXPEDITION OF THE JEANNETTE.

Lieutenant DeLong's Expedition sets out from San Francisco in the Jeannette—He reaches St. Lawrence Bay, East Siberia, where he learns that the Vega had gone South—Lieutenant Danenhower in Danger of losing the Sight of his left Eye—An Operation Performed—Two Winters in the Pack—The Jeannette Crushed by the Ice—Retreat Southward—Discovery of Henrietta and Bennett Island—Melville and his Party Saved—DeLong and his Men die of Starvation, and Chipp's Boat Swamped by the Sea—DeLong's Last Records—How Noros and Nindemann were Saved—Search for DeLong and Chipp's—Return of the Survivors.

THE American Arctic Expedition, commanded by Lieutenant George W. DeLong, of the United States Navy, which left San Francisco July 8th, 1879, was projected by James Gordon Bennett, proprietor of the New York *Herald*. After the return of the last of the two successful expeditions which he had sent to Africa under Henry M. Stanley, Mr. Bennett decided to send out, at his own expense, an expedition to attempt to reach the North Pole by way of Behring Straits. Lieutenant DeLong became interested in the undertaking, and the Pandora, owned by Captain Allan Young, was selected and bought as a suitable vessel to convey the explorers.

The Pandora was built in England in 1862. She was a bark-rigged steam yacht of 420 tons burden, with an engine of 200 horse-power, and a wide spread of canvas. She was strongly constructed, and had seen considerable service in the northern seas. In 1873 she conveyed her owner to the Arctic regions for the purpose of searching for records of Sir John Franklin's expedition; and in 1876 Captain Young cruised in her about the northern part of Baffin Bay—having been deputed by the English Admiralty to search for Captain Nare's expedition.

By special act of Congress the vessel was allowed to sail under American colors, to assume a new name—the Jeannette—and to be navigated by officers of the United States Navy,

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with all the rights and privileges of a government vessel. The Secretary of the Navy was authorized to accept and take charge of the ship for the use of the proposed expedition, and to use any material on hand in fitting her for the voyage; but upon condition that the department should not be subjected to any expense on account thereof.

The Jeannette was taken from Havre, in France, through the Straits of Magellan to San Francisco, by Lieutenant DeLong, with Lieutenant Danenhower as navigating officer, and there delivered to the naval authorities at Mare Island. After a thorough examination it was deemed advisable, on account of the hazardous nature of the contemplated voyage, that her capacity to resist the pressure of the ice should be increased.

The officers and crew of the Jeannette were as follows:

Lieutenant George W. DeLong, U. S. N., Commander.

Lieutenant Charles W. Chipp, U. S. N., Executive officer.

Lieutenant John W. Danenhower, U. S. N., Navigator.

George W. Melville, Chief Engineer. J. M. Ambler, Surgeon.

Jerome J. Collins, Meteorologist. Raymond L. Newcomb, Naturalist.

William M. Dunbar, Ice Pilot. James H. Bartlett, First-class Fireman. John Cole, Boatswain. Walter Lee, Machinist. Alfred Sweetman, Carpenter. George Lauderback, Walter Sharvell, Firemen.

George W. Boyd, Adolf Dressler, Hans H. Erickson, Carl A. Gortz, Nelse Iverson, Peter E. Johnson, George H. Kuehne, Henry H. Kaack, Herbert W. Leach, Frank Mansen, Wm. F. C. Nindemann, Louis J. Noros, Edward Star, Henry D. Warren, Henry Wilson, Seamen.



LIEUTENANT GEO. W. DeLONG.

Ah Sam and Charles Tong Sing (Chinese), Cook and Cabin Stewards.

Lieutenants DeLong and Chipp were officers of the United States steamer Juniata on her northern cruise in search of the crew of the lost Polaris. Mr. Melville was engineer of the steamer Tigress when she went north on the same errand. All of the crew were volunteers, selected with great care from many applicants. Nindemann was a member of the Polaris ice-drift party.

The Jeannette proceeded direct to Ounalaska, one of the Aleutian Islands, and anchored in the harbor of Illioulouk, August 2d. Additional stores and supplies of coal and fur from the storehouses of the company were taken on board.

On the 6th of August the Jeannette resumed her course, and on the 12th of August anchored opposite the little settlement and blockhouse known by Americans as St. Michael's, Alaska, and by Russians as Michaelovski. A drove of about forty trained dogs, three dog-sleds, and fur clothing were taken on board ship, and two native Alaskans, named Anequin and Alexei, were hired to accompany the expedition as dog drivers and hunters. Alexei was a married man, and both could speak a little English.

On the 18th of August the schooner Fanny A. Hyde, conveying coal and extra stores for the expedition, arrived from San Francisco, and on the evening of the 21st both vessels resumed the voyage northward.

On the 25th the Jeannette arrived at the St. Lawrence Bay, East Siberia, some thirty miles south of East Cape, where DeLong learned from the natives that a steamer, supposed to be the Vega, had gone south.

After rounding East Cape, Lieutenant DeLong touched at Cape Serdze, on the northeast coast of Siberia, and left his last letter home. It was dated August 29th, and reached Mrs. DeLong over a year afterward.

On the 29th DeLong attempted to land at the Cape, lat. $67^{\circ} 12'$ north, but found so much ice moving about as to make this impossible. On the 30th Lieutenant Chipp, accompanied by Dunbar, Collins and the native Alexei, landed and learned through Alexei from an old squaw, that the steamer had wintered on the east of Koliutchin Bay; and on the 31st the same party, together with Master Darnbower, at last made sure by a landing on the bay that the Vega had certainly

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wintered there and gone south. Swedish, Danish and Russian buttons found in the hut on shore, and traded for by Chipp for his vest buttons as cash, were proofs enough of the Vega's visit, as no other ship had been in that part of the world with Swedish, Danish and Russian officers on board. Papers were also found written in Swedish and having on them the word Stockholm.

On the sixth following day the ship was beginning to be closed off by the pack-ice; her position was established by observation to be lat. $71^{\circ} 35' N.$ and long. $175^{\circ} 5' 48'' W.$

September 13th, at 8 A. M., Lieutenant Chipp and Engineer Melville, Ice-pilot Dunbar and the native Alexei started out on the floe with a sled and eight dogs, to attempt a landing on Herald Island; but the party returned without having met with any success; no place could be seen offering any protection for a ship, nor any driftwood. Alexei shot a seal and brought it back in the boat, and on the second day following DeLong, with Melville, Chipp and Dunbar, shot two bears, after their escape of some miles from the traps.

But at the close of the month the Jeannette's position was far from being such, as she was still held between the floes as in a vice and drifting with the pack.

Christmas day was the dreariest day ever experienced. The crew came aft to wish the officers a merry day, and made music for them in the deck-house. The ship's bells at midnight of the 31st called all hands together to give three cheers on the quarter-deck for the new year, and for the Jeannette.

Lieutenant Danenhower was now unfortunately placed on the sick-list, being in danger of losing the sight of his left eye. Surgeon Ambler found it necessary that he should remain in total darkness in his room. DeLong was very much distressed at the news, as the Lieutenant's efforts had kept off the moping for many an hour, and he feared the effect of such confinement on the mind. The sick man did not improve during the month of January.

On the 15th the floe was found to have cracked and opened about twenty feet from the starboard side, the crack rounding the bow and running in one direction in the prolongation of the stem, and in another across the stern. On the 19th there was a loud noise as of the cracking of the ship's frame, and at 7.45 A. M. the wind suddenly shifted from north to north-

west, the ice began to move, and the ship evidently received tremendous pressure amid the groaning and grinding floes. The ice moving to the eastward, piled up large masses of the floe under the stem, *breaking the fore-foot*.

To add to the anxieties of the ship's company two streams of water an inch in diameter then began to flow through the filling which had been put in below the berth deck, and the water soon stood eighteen inches deep in the fore-peak and thirty-six inches in the fore-hold, while in the fire-room it was over the floor-plates on the starboard side. The deck pumps were at once rigged and manned. At last the leak was



ALONE IN THE ICE.

diminished, although the steam-pump had to be continually kept to work, pumping out 250 gallons an hour.

March 1st Lieutenant Danenhower had the sixth operation on his eye performed, with the surgeon's statement that others would probably be necessary at short intervals; he still kept his health and spirits. The ship had again drifted northwest, her position being determined by Chipp on the 6th to be lat. $72^{\circ} 12' N.$, long. $175^{\circ} 30' W.$; by the 13th the drift was again thirty-three miles north and $55^{\circ} W.$, and by the 27th fourteen miles farther to north and $63^{\circ} W.$

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so long without serious disturbance. The upper part of the propeller frame had been uncovered by digging away the ice under the stern, and no sign of any damage was apparent there. The ice also had been dug away under the bows to a point on the stem where the draught would be six and one-half feet, at which depth diligent search could detect no injury to the bow, and DeLong came more than ever to the correct opinion that the ship's fore-foot was the seat of the damage. Unhappily at midnight, after the digging, the pressure of the water underneath was too much for the thin layer of remaining ice, and holes were broken through sufficient to flood the large pit under the bow. At the same time great confused masses were piled up thirty and forty feet in height, and Sharvell, one of the crew, reported that he saw, about five miles northwest of the ship, ice piled up as high as the mast-head; he thought the destruction of the ship by its reaching that mountain of ice, or by that mountain of ice reaching her, merely a question of time. On the 24th and 25th eight times as much water as before had come into the fire-room; no greater amount seemed to come in forward, but it was necessary to keep the steam-cutter's engine going nearly all the time aft. It was impossible to discover what could have gone under the ship to affect the leak in this way.

The hopes of release for the ship from her icy cradle seemed well grounded by the thermometer reading 37° , with a fall of rain on the first day of June. Fires were discontinued in the cabin and berth-deck, and the record could be made that there was a gradual resuming of ship-shape proportions to be ready for a start northward and eastward, or northward and westward, whichever the ice and winds would permit; and DeLong had been again hoping strongly day after day for some indication of a coming liberation. The decks were rapidly clearing, and he thought he was surely approaching the time when nothing would remain but to hang the rudder and make sail for some satisfactory result of the cruise. From the first day of the month to the longest of the year, fogs, snows and gales were almost the daily log entry. The drift, contrary to all expectation, had been generally to the southeast. For more than nine months the ship had been driven here and there at the will of the winds. On the 30th her position was $72^{\circ} 19' 41''$ N., $178^{\circ} 27' 30''$ E., fifty miles south, 9° E. of her place on the first. She was heeling 4° to star-

board (3° all winter), and her doubling on that side was about four inches above the water. From the crow's nest it could be seen that she was in the centre of an ice-island, a lane of water in some places a quarter of a mile wide surrounding her at the distance of about a mile. Much effort had been made to liberate the screw without success. The drift on that day was only one mile.

The journal of July 8th makes special reference to the thickness of the floes around and underneath the Jeannette. It recites the facts, that "in September, 1879, after ramming



ARCTIC BIRDS—GULLS.

the ship through forty miles of leads, she was pushed into a crevice between two heavy floes subsequently found to be thirteen feet thick; a depth caused by the overriding and uniting of one floe with another by regelation under pressure. When she was pushed out into open water November following she was afloat, but the next day iced in." By January 17th, 1880, the ice had a thickness of four feet around the vessel, later measurements being rendered impossible by the confused massing which took place two days afterward. As the leak had now almost subsided more firmly and correctly, DeLong believed that he was buoyed up by a floe extending

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down and under the keel. "Let us hope," he wrote, "that one of these days the mass will break up and let us down to our bearings." How sad these bearings were to prove! The forefoot was irretrievably wrenched. The ship must sink immediately on the "breaking up."

During the remainder of the month of July and throughout August the monotonous record of the previous months of routine duty on board ship, and of drift with no release from the ice, remained with scarcely a variation from day to day.

September 1st the ship at last was on an even keel, and this had occurred very quietly and without shock; one or two large chunks of ice rose to the surface and then all was still. The ship was yet immovable, her keel and forefoot being held in the cradles. After sawing under the forefoot five or six feet, in the hope of getting once more properly afloat, it was found that more water came in, and the sawing must be arrested. Before the close of the month the idea of open water was abandoned, and preparations made for a second winter in the pack.

The first break of the monotony came in May, 1881. On the 16th, Ice-Master Dunbar called Chipp to look at *Land*, clearly enough an island, bearing, by DeLong's quickly made observations, S. 78° 45' (magnetic), N. 83° 15' W. true—the first land to greet the eye since March 24th, 1880, fourteen months before. What it had to do in the economy of nature standing desolate among the icy wastes was not the question; it might be the spot to which the ducks and geese had been flying, and if the ship could get some of them for a change, what a treat! "Fourteen months without anything to look at but ice and sky, and twenty months drifting in the pack will make a little mass of volcanic rock like *our island* as pleasing to the eye as an oasis in the desert." On the following day observations placed the ship in lat. 76° 43' 38", long. E. 161° 42' 30"; the rocky cliffs of the island appeared with a snow-covered slope, the highest and farther corner seeming to be a volcano top. The temperature noted was maximum 11° 5', minimum 5° 5'. The Jeannette drifted past on the north side; the ice was so broken, and the pack running so rapidly that DeLong did not think it prudent to make an attempt to land.

May 24th, the pleasing sight was renewed, more land was ahead, and the ice very slack, with many large lanes of water

varying in length from an eighth of a mile to three miles, and in width from twenty to one hundred feet. The lanes were very tantalizing; they seemed to be within a radius of five miles, but the islands were from thirty to forty miles off, and from that five miles radius to them, the ice was as close and compact as ever. On the 31st, estimating the distance to be but fifteen or twenty miles, Engineer Melville, in company with Dunbar and Nindemann, and three other seamen, set out from the ship with a fifteen-dog team to visit this second island. They landed on it June 3d, and took possession for the United States, naming it Henrietta—the name of a sister of Mr. Bennett; a cairn was built and a record was placed within it, and a limited examination made of twelve hours. It was found to be a desolate rock, surrounded by a snow cap which feeds several glaciers on its east face. Within the inaccessible cliffs, nesting dovekeys were the only signs of life. To reach the land, the party left their boat and supplies, and carrying only one day's provisions and their instruments went through the frightful ice mass at the risk of life, dragging the dogs, which, through fear, refused to follow their human leaders. Mr. Dunbar returned badly affected by snow-blindness; Chipp, Newcomb, Dunbar, and Alexei were now on the sick-list, on which Surgeon Ambler had kept DeLong also for several days, in consequence of a severe wound in his head received incidentally from a fan of the windmill. A general order was made out giving the names and positions of the two islands, Jeannette Island, lat. $76^{\circ} 47'$, long. E. $158^{\circ} 56'$, approximate; Henrietta Island, lat. $77^{\circ} 8'$, long. E. $157^{\circ} 43'$.

On the very day last named, the ice around the ship was broken down in immense masses, the whole pack being alive, and had the ship been within one of the fast-closing leads she would have been ground to powder. Embedded in a small island of ice, she was as yet protected from the direct crushing on her sides, but felt a continual hammering and thumping of the ice under her bottom.

On the 12th of June, at midnight, in a few moments' time, she was set free by the split of the floe on a line with her keel, and suddenly righting, started all hands from their beds to the deck. By 9 A. M. the ice had commenced coming in on her side; a heavy floe was hauled ahead into a hole where it was supposed the ice coming together would impinge on

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itself instead of on the ship. The pressure was very heavy, and gave forth a hissing, crunching sound, and at 3.40 P. M. the ice was reported coming through the starboard coal bunkers. At four o'clock she was lying perfectly quiet, but her bows were thrown up so high in the air, that looking down through the water the injury to her forefoot made January 19th, 1880, could be seen. Melville went on the floe to take her photograph, but on returning to the ship heard the order to prepare to leave the vessel by getting out the chronometers, rifles, ammunition, and other articles to the floe. Lieutenant Chipp was quite sick in bed, but was notified; Captain DeLong "was everywhere, seeing that all things went on



ABANDONING THE JEANNETTE.

smoothly and quietly, without the least haste or consternation among the crew; he came about the deck in the same manner as though we were in no danger whatever, and tried to have the officers and men feel as collected as he was." There was ample time for all persons to get out their personal effects, but to get a barrel of lime-juice, so



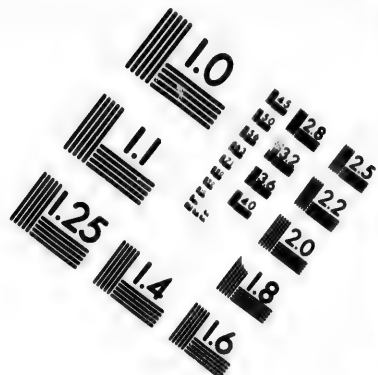
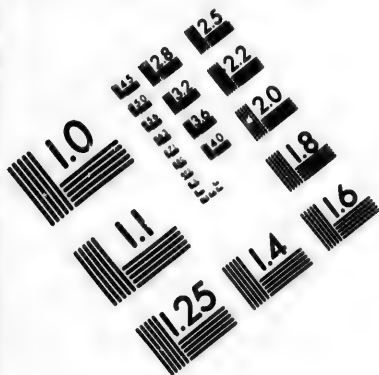
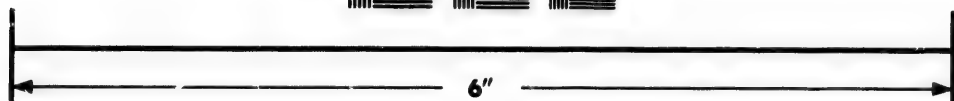
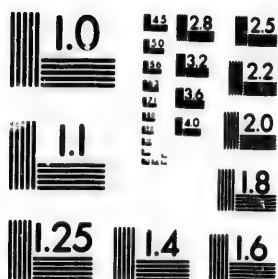


IMAGE EVALUATION TEST TARGET (MT-3)



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necessary to prevent scurvy on their march, Seaman Starr waded into the forward store-room at the risk of his life.

When the order was given for all hands to leave the ship at about eleven at night, her water-ways had been broken in, the iron-work around the smoke-pipe buckled up, the rivets sheared off, and the smoke-stack left supported only by the guys. Three boats were lowered, the first and the second cutter, and the first whale-boat; and the ship's party of thirty-three made their camp on the floe in six tents, but within an hour were compelled to move still farther from its edge by the breaking up of the floe in their camp.

At 4 A. M., June 13th, the cry of the watch was heard, "There she goes; hurry up and look, the last sight you will have of the old Jeannette!" While the ice had held together, it had held her broken timbers. When it opened—with her colors flying at the masthead—she sank in thirty-eight fathoms of water, stripping her yards upwards as she passed through the floe. At 3 A. M. her smoke-pipe top was nearly awash; the main topmast first fell by the board to starboard, then the fore topmast, and last of all the mainmast. The ship before sinking had heeled to starboard about 30°, and the entire starboard side of the spar deck was submerged, the rail being under water, and the water-line reached to the hatch-coamings before the ship had been abandoned. The next morning, a visit to the place where she was last seen showed nothing more than a signal chest and a cabin-chair with some smaller articles afloat. This happened in lat. 77° 14' 57" N.; long. 154° 58' 45" E.

Daylight found the party encamped on the ice, about four hundred yards from where the ship went down. The day was spent in arranging the effects and in gaining rest, which was very much needed. Many of the crew were incapacitated for active work by reason of severe cramps, caused by tin-poisoning from tomato cans. Among the sick were Lieutenant Chipp, Kuehne, the Indian Alexei, Lauderback, and the cabin steward.

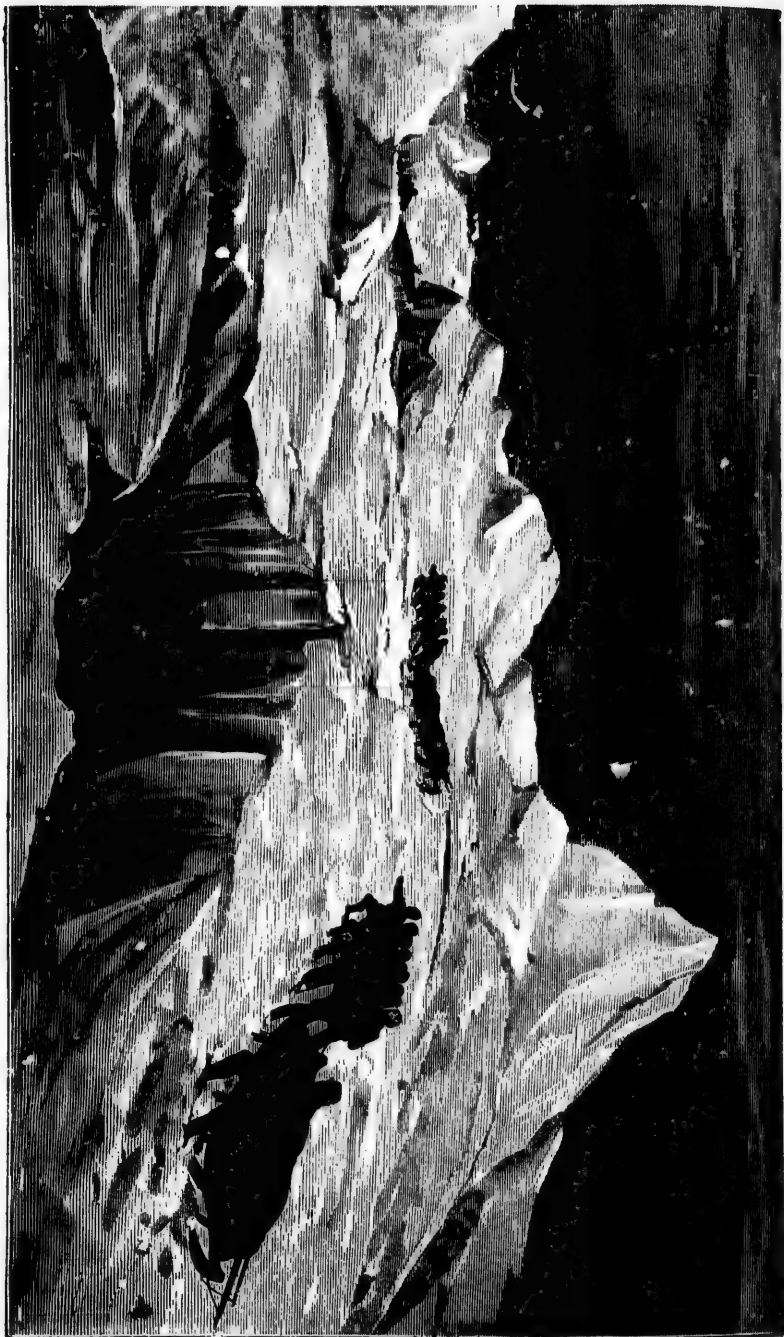
The doctor recommended delay until the sick party should have recovered; but the time was not wasted, and the rest of the crew began the work of dividing the clothing, and stowing the sleds and boats. There were as provisions 3,500 pounds of pemmican in tinned canisters of 45 pounds weight each; about 1,500 pounds of hard bread, and more

tea than was needed; also some canned turkey and canned chicken, but these were disposed of in the first camp. Besides these there was a large quantity of Liebig's extract, a most important element in the diet of the crew; a large quantity of alcohol, which was intended to serve as fuel for cooking during the retreat; plenty of ammunition, and a good equipment of rifles. The provisions were stowed on five sleds, each having a tier of alcohol in the middle, and on either side a tier of pemmican canisters. Another sled was loaded with bread and a limited quantity of sugar and coffee.

There were three boats mounted upon ship-made sleds, each of which consisted of two oak runners, shod with whalebone. The grand total weight of boats, sleds, and provisions was about 15,500 pounds. To draw these, the party had a working force, when the retreat commenced, of twenty-two men; and the dogs were employed, with two light sleds, to drag a large amount of stores, that the party had in excess to those permanently stowed upon the larger sleds. Each man had a knapsack stowed away in the boats; each knapsack contained one change of underclothing, one package of matches, one plug of tobacco, one spare pair of snow-goggles, and one spare pair of moccasins.

On the 17th day of June, at 6 P. M., the order was given to break camp. The order was obeyed with enthusiasm, and the drag-rope of the first cutter was immediately manned. At the end of the first week the captain found by observation that the drift of the ice had more than neutralized the way covered by his advance, and that in fact he had lost twenty-seven miles by the drift to the northwest in excess to his march to the south. The progress of the party toward the land was very slow, but finally glaciers and water-courses became visible. On the 24th of July the party reached a point not more than two miles distant from the land, but the men were so exhausted that they had to camp. Next morning it was found that they had drifted at least three miles to the southward, and along the east side of the island. On the 27th day of July an island was reached composed of trap-rock and a lava-like soil, and on the 28th a landing was made on the new discovery. Captain DeLong mustered everybody on the island, unfurled a silk flag, took possession of the island in the name of the President of the United States, and called it Bennett Island. The south cape was named

DELONG AND PARTY CROSSING A HEAVY ICE-PACK.



Cape Emma, after the captain's wife, and was in lat. $70^{\circ} 38'$ north, long. $148^{\circ} 20'$ east.

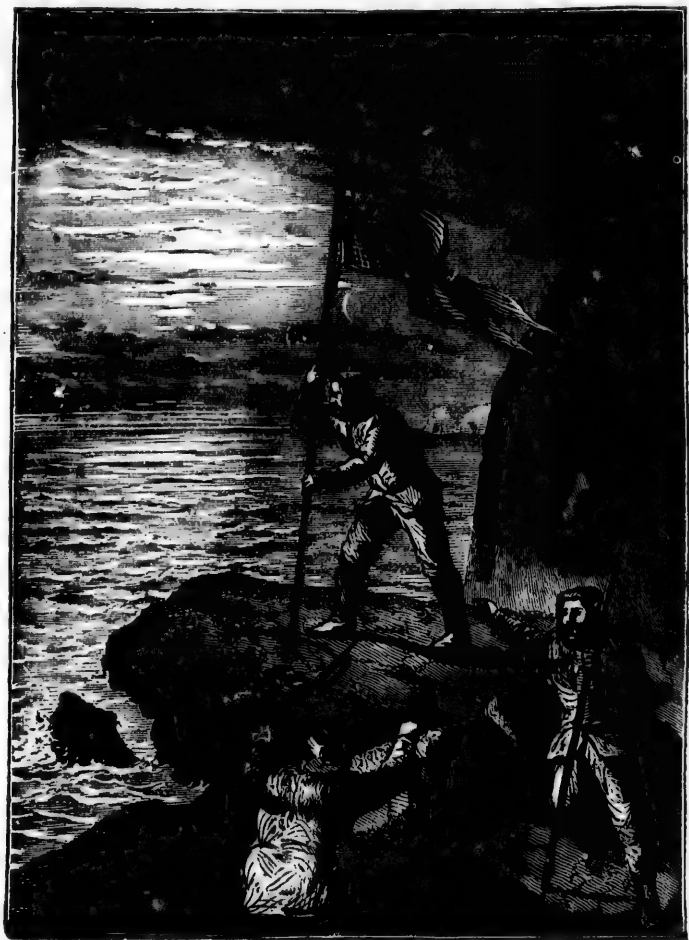
The ship's company now encamped for several days, needing rest and change of diet. Their first surfeit on the numerous birds readily knocked down brought some sickness, compelling a return to pemmican. Dunbar and the two Indians explored the east side of the island, finding there several grassy valleys; Lieutenant Chipp and Mr. Collins explored the south and west sides; a box of geological specimens was obtained and brought home by Lieutenant Danenhower. Dr. Ambler obtained amethysts, opals, and petrifications; tidal observations were made, the greatest rise and fall noted being about three feet. The party left the island August 6th, and made fair progress until the 20th, when, after drifting along the north coast of Thadeoffsky Island, they were imprisoned nearly ten days, after which they found themselves in navigable water, and rounded the south point of the island.

The three boats and their several occupants were, the first cutter, holding Captain DeLong, Surgeon Ambler, Mr. Collins, and eleven of the crew, including Ah Sam, the cook, and the Indian, Alexei; the second cutter, with Lieutenant Chipp, Ice-Pilot Dunbar, and six of the crew; and the whale-boat, Engineer Melville commanding, Lieutenant Danenhower (invalid), and eight of the crew, including the Chinese steward, and the Indian, Aneguin.

On the 10th the land of the Asiatic coast was in sight, estimated to be twenty miles westward; and on the 11th a landing was made and parties sent out hunting. An old deserted hut was found, and human footprints made by a civilized boot. Lieutenant Chipp and some of his sailors visited Melville's camp, and reported that they had had a very rough experience.

September 12th, the three boats left Semenovski Island on which the party had camped, at about 8 A. M., and remained in company till noon. A gale was commencing from the northeast, which by 7 P. M. forced all hands in the whale-boat to be pumping or baling out water. The course was south-southwest, true. Captain DeLong was about 500 yards distant from Melville, and Chipp 700 from DeLong. The gale increasing, both of these last were lost sight of by the whale-boat; the first cutter destined to land her party and make

the sad experience of their intense suffering to death by cold and starvation; the second cutter to leave no record, but the blank to be filled by the reasonable supposition of her being swamped by the sea; and the whale-boat to be saved only by



ANNEXATION OF BENNETT ISLAND.

the successful use of a drag or sea-anchor, and the incessant baling by almost exhausted men.

The course of the party in this boat will be first traced. Engineer Melville was in command, but relied on the professional ability of Lieutenant Danenhower, still on the sick-list.

The pocket prismatic compass, useful on shore, where it could be levelled and the needle come to rest, was now unavailable. Steering was by the sun or the moon. Lieutenant Danenhower carried the watch and chart, and could shape the course of the boat by the bearings of the sun at this equinoctial period. September 15th, one of the eastern mouths of the Lena was entered, and, by the assistance of a Tungus pilot, the party pushed up the river, and on the 26th reached a small village, in which lived a Siberian exile, Kopelloff, who proved very useful in opening the way to intercourse by teaching the Lieutenant Russian phrases. They were detained at this place waiting for the growth of the ice for sledging, and while another Russian exile, Koosmah Gerrymahoff, with the chief of the village, went forward to Bulun to inform the Russian authorities of their arrival.

On the 17th of October, Danenhower began his search with a dog-team, to explore the coasts for the missing boats, but was unable, from the condition of the ice, to proceed far in any direction, and returned without results.

On the 29th the two messengers returned, bringing the news that on their way back they had met natives with deer-sleds, who had Nindemann and Noros, of DeLong's party, conducting them to Bulun. The two seamen had written a note, stating that the captain's party were starving, and needed immediate assistance. Koosmah communicated this note to Engineer Melville, who immediately started with a native and dog-team to find the men, learn the position of the captain's party, and carry food to them. Danenhower was ordered to take charge of the party, and get them as soon as possible to Bulun. November 1st, the Bulun commandant brought to him a good supply of bread, deer-meat, and tea, and a document addressed by Noros and Nindemann to the American Minister at St. Petersburg; this the Lieutenant forwarded by Seaman Bartlett to Melville, and as soon as possible himself started forward, overtaking Melville at the first deer station. He received from him orders to go forward to Yakutsk, which he reached December 17th, 1881.

At Yakutsk Melville received the first despatch from the Secretary of the Navy, ordering him to send the sick and frozen to a milder climate; Lieutenant Danenhower's party went forward, therefore, to Irkoutsk. Here, being advised by the Russian oculist that his right eye would be well in a

few days, he telegraphed to the department, through the American Legation at St. Petersburg, asking permission to hire a steamer, and search for Lieutenant Chipp's party during the spring and summer; also for two line officers to assist. He received a reply through the Legation that two officers would be sent. The entire party of men of which he had charge volunteered to remain for the search, six of them being in excellent condition; February 5th, however, he received further orders from the Navy Department that, owing to his condition of health, the order to remain and search for survivors of the Jeannette was revoked. The oculist allowing him to start on the 13th of March, the lieutenant went



SCENE IN LAPLAND—TRAPPING GAME.

forward with his men, except Seaman Noros, whom he had been ordered by a subsequent telegram to permit to accompany Mr. J. P. Jackson, a special messenger sent out by Mr. Bennett to renew search on the Lena delta.

Lieutenant Danenhower, Mr. Newcomb, Cole, and the Chinese arrived in New York city on June 1st. The rest of the whale-boat crew, except the Indian, Aneguin, who died of smallpox in Russia, and Nindemann and Noros, of DeLong's party, arrived in the United States previous to the 12th of February, 1882. Cole was already mentally affected, and became an inmate of the Government Asylum for the Insane at Washington, D. C.

The following sad history is derived from the records of

Commander DeLong, up to his last entries of October 30th, and from the reports of Engineer Melville and Lieutenant Danenhower, their testimony before the Naval Court of Inquiry, and that of the seamen, Nindemann, Noros, and Bartlett; the first two of these three being the only ones saved from this boat.

The captain's brief journals of September, 1881, record: "At 9 P. M. September 12th, lost sight of whale-boat ahead; at 10 P. M. lost sight of second cutter astern; wind freshening to a gale. Step of mast carried away; lowered sail and rode to sea-anchor; very heavy sea, and hard squalls. Barometer falling rapidly.

"13th, very heavy northeast gale. . . . At 8 P. M. set a jury-sail made of a sled-cover, and kept the boat away to the westward before the sea;—17th, grounded at a few hundred yards, landed at 8 P. M.; dark and snow-storm, but Collins had a good fire going; at 10.20 had landed everything, except boat oars, mast, sled, and alcohol breakers;—18th, had fires going all the time to dry our clothes; we must look our situation in the face, and prepare to walk to a settlement.

"September 19th, ordered preparations to be made for leaving this place, and as a beginning, all sleeping-bags are to be left behind. Left in instrument box a record, portions of which read thus:

"LENA DELTA, September 19th, 1881.

"Landed here on the evening of the 17th, and will proceed this afternoon to try and reach, with God's help, a settlement, the nearest of which I believe is ninety-five miles distant. We are all well, have four days' provisions, arms and ammunition, and are carrying with us only ship's books and papers, with blankets, tents, and some medicines; therefore, our chances of getting through seem good. . . . At 2.45 went ahead, and at 4.30 stopped and camped. Loads too heavy—men used up—Lee groaning and complaining, Erickson, Boyd, and Sam, hobbling. Three rests of fifteen minutes each of no use. Roads bad. Breaking through thin crust; occasionally up to the knees. Sent Nindemann back with Alexei and Dressler to deposit log-books. . . . Every one of us seems to have lost all feeling in his toes, and some of us even halfway up the feet. That terrible week in the boat has done us great injury; opened our last can of pemmican, and so cut it

that it must suffice for four days' food, then we are at the end of our provisions, and must eat the dog (the last of the forty) unless Providence sends something in our way. When the dog is eaten——? I was much impressed, and derive great encouragement from an accident of last Sunday. Our Bible got soaking wet, and I had to read the Epistle and Gospel from my prayer-book. According to my rough calculation it must have been the fifteenth Sunday after Trinity, and the Gospel contained some promises which seemed peculiarly adapted to our condition.

"September 21st, at 3.30, came to a bend in the river making south, and to our surprise, two huts, one seemingly new. At 9 P. M. a knock outside the hut was heard, and Alexei said: 'Captain, we have got two reindeer,' and in he came bearing a hind-quarter of meat. September 24th, commenced preparations for departure from the hut at 7 o'clock. . . . At 10 P. M. made a rough bed of a few logs! wrapped our blankets around us, and sought a sleep that did not come; 27th, made tea at daylight, and at 5.05 had our breakfast—four-fourteenths of a pound of pemmican. . . . At 9.45 five men arrived in camp, bringing a fine buck. Saved again! September 30th, 110th day from leaving the ship, Erickson is no better, and it is a foregone conclusion that he must lose four of the toes of his right foot, and one of his left. The doctor commenced slicing away the flesh after breakfast, fortunately without pain to the patient, for the forward part of the foot is dead; but it was a heart-rending sight to me, the cutting away of bones and flesh of a man whom I hoped to return sound and whole to his friends. October 1st, the doctor resumed the cutting of poor Erickson's toes this morning; only one toe left now. And where are we? I think at the beginning of the Lena River at last. My chart is simply useless. Left a record in the hut that we are proceeding to cross to the west side, to reach some settlement on the Lena River. October 3d, nothing remains but the dog. I therefore ordered him killed and dressed by Iverson, and soon after a kind of stew made of such parts as could not be carried, of which everybody, except the doctor and myself, eagerly partook; to us it was a nauseating mess. . . . Erickson soon became delirious, and his talking was a horrible accompaniment to the wretchedness of our surroundings. During the night got his gloves off; his hands were frozen. At 8 A. M. got Erickson (quite uncon-



DIVIDING THE DEER-SKIN SCRAPS.

scious), and lashed on the sled under the cover of a hut, made a fire and got warm. . . . Half a pound of dog was fried for each one, and a cup of tea given, and that constituted our day's food. At 8.45 A. M., our messmate, Erickson, departed this life. October 6th, as to burying him I cannot dig a grave, the ground is frozen, and I have nothing to dig with. There is nothing to do but to bury him in the river. Sewed him up in the flaps of the tent, and covered him with my flag. Got tea ready, and with one-half ounce alcohol, we will try to make out to bury him. But we are all so weak, that I do not see how we are going to move.

"At 12.40 P. M. read the burial-service, and carried our departed shipmate's body down to the river, where, a hole having been cut in the ice, he was buried; three volleys from our two Remingtons being fired over him as a funeral honor.

"Supper, 5 P. M., half pound dog meat and tea. October 9th, sent Nindemann and Noros ahead for relief; they carry their blankets, one rifle, forty pounds ammunition, two ounces alcohol. . . . Under way again at 10.30, had for dinner one ounce of alcohol. Alexei shot three ptarmigan. Find canoe, lay our heads on it and go to sleep.

"10th, eat deer-skin scraps. . . . Ahead again till eleven. At three halted, used up. Crawled into a hole on the bank. Nothing for supper, except a spoonful of glycerine. 17th, Alexei died, covered him with ensign, and laid him in a crib. 21st, one hundred and thirty-first day, Kaack was found dead at midnight. Too weak to carry the bodies out on the ice; the doctor, Collins and I carried them around the corner out of sight. Then my eye closed up. Sunday, October 23d, one hundred and thirty-third day—everybody pretty weak—slept or rested all day, then managed to get enough wood in before dark. Read part of divine service. Suffering in our feet.

"Monday, October 24th, one hundred and thirty-fourth day. A hard night.

"Tuesday, October 25th, one hundred and thirty-fifth day. No record.

"Wednesday, October 26th, one hundred and thirty-sixth day. No record.

"Thursday, October 27th, one hundred and thirty-seventh day. Iverson broke down.

"Friday, October 28th, one hundred and thirty-eighth day. Iverson died during early morning.

"Saturday, October 29th, one hundred and thirty-ninth day. Dressler died during the night.

"Sunday, October 30th, one hundred and fortieth day. Boyd and Görtz died during the night. Mr. Collins dying."

The preceding brief extracts from this saddest of all journals tell the story of the first cutter, excepting that of the two saved, Nindemann and Noros. The captain, the surgeon, and the last one of the crew must have perished almost immediately after the last one of their comrades.

According to the testimony of Seaman Nindemann, DeLong, on the 9th of October, had called him aside and said to him: "I think you have to go only about twelve miles to a settlement called Ku-mark-surka, and you and Noros can make it in three days, or at the longest, four. Do the best you can; if you find assistance come back as quick as possible; and if you do not, you are as well off as we are."

The two men started off with three cheers from their comrades, and a copy of the captain's chart, by which he worked. On their first day they killed one ptarmigan; on the second, failing to secure a deer, they made a supper on a boot sole soaked in water and burned to a crust, with some Arctic willow tea; on the morning of the 11th they again started on their way south, and at 12 M. stopped to make use of some of the alcohol, but on finding that the bottle in their pocket had been broken, dined on another boot sole with Arctic willow tea, and supped upon some deer bones that were burned in a hut. On the 12th they were somewhat more fortunate, for on gathering some driftwood Noros looking into the hole beneath it drew out two fishes, and Nindemann caught a lemming. The day following, having nothing to eat, a piece of seal-skin pants was cut off, soaked in water and burned to a crust, and on like food they subsisted until the 20th, when they found in a kayak near another hut fishes enough to keep them alive for some days; they were becoming very weak by dysentery.

On the 22d, looking through the crack of the hut in which they were resting, they saw a native who, on the evening of the same day, returned with others, and, putting the two men on deer sleighs, drove with them until midnight to their tents, into which they took the two seamen and fed them. The natives, after securing a number of deer, carried the two farther forward, and, after learning from them, by the assist-

ance of a tall Russian, that they wished to be carried to Bulun, the most northern Russian settlement in Siberia, landed them at that place on the 29th. Here Noros wrote, at Nindemann's dictation, a letter to the American minister at St. Petersburg, informing him of the condition of DeLong and his party.

Engineer Melville without any delay started on the search for Captain DeLong and his companions, but after great suffering and exposure of three weeks' duration he was forced to return, without having found the missing party. On March 23d, 1882, however, accompanied by Seaman Nindemann and



ENGINEER GEO. W. MELVILLE.

Bartlett, he found the resting-place of the twelve bodies of DeLong and his companions. Four poles lashed together and projecting out two feet from the snow-drift pointed to their resting-place. The muzzle of a Remington rifle also stood above the snow bank eight inches, its strap hitched over the poles. A few hundred yards farther were the three bodies of Captain DeLong, Surgeon Ambler and Ah Sam, the Chinese cook. Alongside of DeLong was his notebook with the last feebly written lines which have been cited; under the poles were the books and records with which the con-

scientious care of the commander had too heavily loaded himself and party. Alexei's body was searched for in vain; DeLong's journal showed that he died in the flat boat. It is probable that the remains of the native were borne by the flood into the Lena. Erickson, as has been stated, had been buried by DeLong in the river. The captain's left arm was sticking up out of the snow.

Nindemann, with Bartlett, under Melville's direction, took everything from the bodies, tying up each parcel separately in handkerchiefs found upon them. After much further digging in the snow, and finding a number of other small articles,

Melville had all the bodies carried over the mountain to the southward of Mat-Vai, where, on a high bluff, a tomb had been prepared, and a box to hold the bodies. They were arranged side by side, DeLong, Ambler, Collins, and the others in regular rotation, as their names were cut on a vertical portion of a cross placed over the tomb.

The tomb itself was covered with seven-inch plank its whole length, and the cross shored with diagonal braces to the edge of the box, a regular pyramid being built over the tomb, which was covered with rough stones, from one hundred and fifty to two hundred pounds at the base, with small pieces at the top and sides. The cross arm was hoisted into its place, and keyed by Nindemann with a large wooden key to keep it in place. The cross was twenty-two feet high, the arm twelve feet in length.

Arrangements were subsequently made at Yakutsk to have the entire cairn covered with a deep layer of earth, to prevent the possibility of the sun thawing the bodies therein.

During the first week of April Engineer Melville's party, having completed the burial of the bodies, were put upon the search for the second cutter, under the command of Lieutenant Chipp. Nindemann and Bartlett were sent to Cape Barkin, from which point one of them examined the sea-coast of the Delta southward as far as Jamavaeloch, working also into the mouths of the rivers; the other followed the north coast of Siberia to the river Osoktok, along which DeLong and his party came. Their orders were executed in the most thorough manner, but no trace of the second cutter was found. The first cutter was found where she had been abandoned in the ice of the ocean, filled with water, frozen in and badly stove.

IN MEMORY
OF 12 OF
THE
OFFICERS AND
MEN
OF

THE ARCTIC STEAMER "JEANNETTE,"
WHO DIED OF STARVATION
IN THE LENA DELTA, OCTOBER, 1881.

LIEUTENANT
G. W. DELONG.
DR. J. M. AMBLER.
J. J. COLLINS.
W. LEE.
A. GORTZ.
A. DRESSLER.
H. H. ERICKSON.
G. W. BOYD.
N. IVERSON.
H. H. KAACK.
ALEXEI.
AN SAM.

Melville searched the coast line west to the deserted village of Chancer, thence across the peninsula, down the river Alanack to the ocean; along the coast, in and out of all the bays to the northwest point of the Delta, and thence along the north coast; completing the coast-wise search for the second cutter by a still further search to the river Jana.

The sledging season was now at an end. He was detained on the mountains by the melting of the snows, but reached Yakutsk June 8th. Hearing here that Lieutenant Harber had found it impossible to charter at fair rates the expected steamer for the Lena, and was making other preparations for his summer search, but prevented from meeting him, Melville sent Bartlett to report for duty under the lieutenant, and sent with him a track chart of the search already made on the Delta. From Irkutsk Melville began his home journey with Nindemann and Noros, arriving in New York September 13th, 1882.

The bodies of Captain DeLong and his unfortunate companions were brought to the United States for permanent burial by Lieutenant Harber and Master Schuetze of the United States Navy.

CHAPTER XIV.

UNFORTUNATE EXPEDITION OF THE JEANNETTE.

The Events of the Jeannette Expedition Described by Chief-Engineer Melville—A Drift of Twenty-two Months in the Ice-Pack—The Melville Canal—Three New Islands discovered—Henrietta Island—The Destruction of the Jeannette—The Dogs Abandoned—The Retreat—Drifted to the Northwest—Bennett Island—The Lena River Reached—Nearing the Siberian Coast—Without Drinking-Water for Five Days—At the Delta of the Lena—Mountains in Sight—Mr. Melville Effects a Landing—Frozen Legs and Feet—On Half-Rations—The First Yakut Seen—Speaking by Signs—Bulunga! Bulunga!—Jamavialock—Putrid Goose as a Delicacy—The Hut of the Starosta at Jamavialock—Kusma—First News of DeLong and His Party—Melville in Search of DeLong—Noros and Nindemann Found—Their Story—Melville starts from Burulak—On the Trail of the Seamen—On the West Bank of the Lena.

MR. MELVILLE, in conversation with the writer, gave a most graphic account of many of the events in the history of the disastrous Jeannette expedition. Mr. Melville's narrative is so full of important detail, and contains so much that is new to even the readers of Arctic travel and adventure, that it cannot fail to be of the greatest interest. A few points only, however, can be touched upon. The great Arctic explorer, during an interview, spoke especially of the subject of ice navigation and of the long drift of the Jeannette of twenty-two months in the ice-pack.

"By our constant soundings and experiments in the ice," said Mr. Melville, "we had made a perfect survey of the bottom of the Arctic Ocean for a distance of 1,300 miles. This peculiarity of the drift was demonstrated—that the ice to the northwest of us was always fast, and while we drifted along from the southeast in a northwesterly direction, the ice to the south apparently being in motion all the time, the track chart of the crew showing a canal of water in which the ship appeared to drift back and forth. This was called the Melville Canal. This drift demonstrated that whenever we drove to the south of the usual line the water shoaled to from twenty to thirty-two fathoms, while at one time when the drift took the ship in a northerly cant the lead line dropped into a

sounding of eighty-two fathoms. The dredgings showed specimens of extinct bivalves, besides star fish and other incrustacea. Another peculiarity shown was that winter or summer the ice of the Arctic Ocean is never at rest, always in motion—crowding, grinding, jamming, telescoping, rafting together, and for this reason it is necessary in making attempts to reach the North Pole to have the land to hold on to. Wherever expeditions have gone islands have always been found to the northward. The Jeannette discovered three new islands, and during the drift in the darkness of the winter night and the dense fogs of the summer, when often we could not see a mile from the ship, in those 1,300 miles to the northwest we may have passed numerous unseen islands. It is therefore necessary in approaching the Pole to make depots of supplies either on the main land or on outlying islands where they may be found again. For instance, one little item of our experience in the drift will show the importance of this. After we were frozen in in September we remained in the pack until the latter part of October, and we had constructed a canvas house on the ice, by the ship's side, for the men to work in. We broke out in a hurry, and barely had time to gather our instruments, boats, sleds and dogs into the ship, when we drifted off about two miles down a narrow lane of water. About the same time Alexei had had a shot at a bear, and was obliged to leave it on the ice. After we had drifted about two miles, as I have stated, a party was sent back to find the animal. Owing to the crowding and jamming of the ice, the bear or canvas house could not be found until about a year or a year and a half afterwards, when Iniquin, the Indian hunter, was out one day and ran across what he termed a 'two-man house.' He was very much alarmed and fled back to the ship, first marking the spot by setting his spear in the ice and tying his hunting-jacket and cap to the top of it. The next day Lieutenant Chip was sent out with a sled and he found it to be the old structure. We had been all over the drift every day, but had not come across it until then, which shows how difficult it is to make a cache in the ice and ever find it again. For this reason a system of colonies and depots of supplies can only apply where there is land to hold on by.

"While drifting by Jeannette Island and coming close to Henrietta Island, I was sent with one of the other officers of

the ship, four men, sixteen dogs and ten days' provisions, to make a landing on the latter island. We were drifting rapidly by, the estimated distance being from sixteen to twenty-five miles. We had supplies for ten days, but we accomplished the march to and from in less than six days, and during the whole of this trip the ice was so much in motion that at times the dog trains would be on one side of the moving ice-pack and the men on the other. We continued in this way until within three or four miles of the island, when we found it would be impossible to effect a landing and carry the whole of the camp equipment, which was then hauled on to a floe berg, where we erected an oar and lashed a jacket and hat to it to mark the place. Then with the dogs, navigating instruments, guns and one day's provisions we made a dash for the island. The dogs refused to follow, and I had to seize the leader by the neck and drag the team through the moving ice-pack, thus succeeding in effecting a landing, the boat drifting off in a northwesterly direction. I made a rapid running survey of the northeastern end of the island, remaining there twelve or sixteen hours. From the high lands of Henrietta Island the ship could be seen moving off in the distance. I secured compass bearings of her and pushed off in that direction, picking up the boat and equipment on our return, and from the time we left until we got back to the ship, as before stated, estimated at from sixteen to twenty-five miles from the island, we never found one of the sled tracks to form our retreat upon.

"It was shortly after drifting by this island," continued Mr. Melville, "that the floe became so broken as to cause the destruction of the ship. On the night of the 11th-12th of June, at midnight, it was my turn of duty to take the meteorological observation at the observatory, which had been erected on the ice about 300 yards from the port side of the ship. The ice had been crowding and jamming, caused by the floe infringing on the island, and we all felt that it was probable that the floe piece in which the ship had been embedded for months was going to pieces, knowing that when that did happen, from the thickness of the ice and its movement, the destruction of the Jeannette was inevitable. As I was passing over the gang plank a shock caused me to pause, and as I stood looking down over the side of the ship, I saw a lane of water opening and the ship began to oscillate from port to star-

board, and finally floated upright. The floe on the port side drifted silently away to a distance of 250 or 300 yards. The freeing and righting of the ship started everybody, and all hands were up in an instant. A boat was lowered, and the instruments from the observatory and various small articles which had been left on the ice were gotten on board, and the dogs ferried from the receding floe to that on the starboard side, to which the ship was now made fast. The Esquimaux dogs won't take to the water if they can help it, unlike the Polar bears, who take to it as naturally as fish. One of the Kamtschatkan dogs, which stood with us to the bitter end, was called 'Kasmatka.' He had made friends with one of the seamen, Gærtzy, and when he saw his friend on the opposite floe he waded in and swam the gap. The rest dipped their feet in the water and backed out, yelping and howling, feeling that they were abandoned and about to drift off from their human protectors. When all was snug, the ship was hauled into a recess like a dock or lunette. It was manifest to the whole crew that if the ice came together, as Mr. Dunbar, the ice-pilot, said, 'we'd either go under or on top.' By two or three o'clock all was quiet and the people had turned in, but before six in the morning of the 12th, the ice was cutting or grinding on the port side to such an extent that we all turned out. The ice nipped and squeezed the vessel many times, so as to force the oakum and pitch up out of the decks, the deck beams bowing up so as to open the seams, and upon the sudden relieving of the pressure the decks would spring back with such force as to eject half the water from a bucket which was on the deck amidships. This continued during the day, nipping and crowding, at times remaining quiet, until 3 P. M., when the ice had forced itself underneath the forepart of the ship and threw the bows well up out of the ice, unfortunately depressing the stern. The ice beneath seemed to hold her by the keel and canted her to starboard, also depressing the stern and caused the ice to pile up on the starboard quarter. At this time the ice ceased crowding and we could see the damage done to the forepart; two scarfs had been pushed out of place. DeLong ordered me to get out the camera to take a photograph of the ship as she lay, we still having hopes that the ice would remain quiet and that all the damage was done that would be, and still hoping to free the ship. I exposed a plate about 4 P. M., and was in the dark room de-

veloping it when the ice commenced to charge again. The ship evidently was going to pieces. The order was passed for all hands to abandon the ship. At this time we had seven or more on the sick-list, including Lieutenant Chip, Mr. Dannenhower, Mr. Newcomb, the taxidermist, Alexei, seamen Cooney, Stewart, Charlie Tong Sing, and fireman Lauderback and others. DeLong took command of the deck, and, smoking his pipe on the bridge, quietly gave the orders to lower the boats, directing the few remaining officers on duty to see about getting out the sick, the provisions, clothing, arms and ammunition and all other equipments necessary for our retreat.

"A regularly organized and systematic bill for the abandonment of the ship, in case of its destruction by the ice, had been prepared by DeLong before we entered the ice, and each officer was detailed to look after some particular part of the equipment. In case of the sickness of any officer his duty was to be performed by some other officer of the ship. As the ice kept crowding upon the poor old Jeannette she keeled over to the starboard, and, being raised out by the bows, careened over until her yards touched the ice. The smokestack was still standing, but the light iron work and stays commenced to sheer off by the rivets, and the snapping, banging and crashing of the timbers was like a thousand sledges at work on as many boilers. Before the water commenced to rise on the ship nearly all the sick, provisions and necessary equipment had been put on the ice. Some of the people who were not assigned to duty had littered the cabin with personal effects, some having had their suppers. DeLong, Dr. Ambler and myself, having been constantly on duty, had neglected to get supper or look after any of our effects. When the word came from the men in the engine room that the water was rising in the bilge we went below to get our clothing, which was always kept packed in knapsacks ready for emergency, each having also a pillow case of woollen clothing in addition. I secured my knapsack and threw it on the ice, but before I had time to return for the additional clothing the water rose through the ship, filling her to the water line. Up to this time the sides had not come in. The water-ways and decks had split open and the deck timbers were turning upwards, but still the ship had not made any water until apparently a mass of ice from below was pushed

up and tore her keel out, carrying the garboard strakes with it. Arctic ships should have neither stern pieces, forefoot or keel extending outside of the planking or doubling. A false keel should be fitted, which, if pushed off by the ice, would not cause a leak. The ship would simply have no keel, the keelson rising in the inside to give the requisite strength. It is a remarkable coincidence that in both the Jeannette and Polaris both had the forefoot pushed out and caused a constant pumping out for $1\frac{1}{2}$ years. In the Jeannette we pumped night and day by hand, by steam or by windmill, all of which apparatus were constructed by the force on the ship during the eighteen months.

"It was 11 P. M. of the 12th before DeLong ordered every one to leave the ship. The ice had come in and crushed the vessel, but held it fast. The water had struck as high as the combings of the hatches. Everything necessary for the retreat was on the ice, nothing had been forgotten. We had more clothing, arms, etc., placed on the ice than we could carry. The colors were run up to the mastheads, and after DeLong had made a thorough search to see that no one was left on board, he was the last to leave her, issuing a general order that nobody should return on board of the wreck. That night we made our first camp on the ice. We pitched the tents, gathered the equipments and sleeping-bags together, as divided into five tents, and some time after midnight turned in. We had barely got to sleep when the floe began to break under us. In the meantime strict orders were given to watch for the breaking up of the floe. When it split, almost under the camp, all hands turned out in a hurry, to find the break transverse of the line of tents, two men barely escaping a cold bath as the ice parted beneath them. As it was the men in their sleeping-bags were dragged out of the water. The ice then commencing to shift, the camp was on one side, the boats and provisions were on the other drifting from us. These were hurried from the moving floe to the camp side, and in an hour we turned in again. At 4 A. M., at the calling out of the morning watch, the man of the watch in calling of the relief alarmed the camp by singing out: 'Turn out, fellows! If you want to see the last of the old Jeannette now's your time.' Some merely sat up in their tents and looked out, and others got up. The ice had completed its work. The ship was crushed by the ice, nearly the top from the bottom; then,

easing off, the hull rapidly settled, the ship righting as she went down, the yards taking the ice on the side stripping up the mast and breaking them as she passed, with a rattle, down out of our sight.

"At six in the morning all hands turned out to visit the place, and we found little if anything left but a signal chest, an old chair, a box of succotash which had been thrown on the ice, and the topgallant poles. The wood we gathered up and used for fuel in the camp. We now commenced to prepare the boats and sleds for our retreat. The sleds had to be relashed, new chocks or bolsters fitted under the bilges of the boats; the bread had to be packed; the wood removed from the alcohol cases (to reduce the weight). A sick-tent was organized and placed under the charge of the doctor. After a thorough organization had been effected, a general order was posted stating that we had commenced the line of retreat to the south, the objective point being the Lena Delta, which was five hundred miles distant in a bee line."

Mr. Melville then gave a graphic account of the retreat over the ice-pack, and the terrible trials which beset the travellers in their struggle to reach the first land. The line of march was marked by a line of flags, which were set up by DeLong and Dunbar in order to facilitate the more rapid advance of the sledding parties. "The commanding officer would locate himself upon a high hummock with a compass and flag. The latter was of black stuff, a yard square, and mounted upon a staff six feet high. The assistant would advance a half mile or more, occasionally looking back to the leader, who would direct him to the right or left, according to the compass bearings. The assistant then sets up a flag, and the leader follows it up and takes his stand, the assistant advancing as before, the sledding master working up the sleds and boats and gathering in the flags as he advanced. The line of march had to be taken around hummocks, across the smooth places, DeLong and Dunbar invariably laying out the line through water sometimes up to the knees and hips, and across the roughnesses, never at any time having one mile of straight going, over which a horse could be driven, and never advancing a single rod without cutting the way with axes, pickaxes and shovels, which we were obliged to carry with us. Before the first day's march we supposed that each party would be able to haul its own provision sled, this load

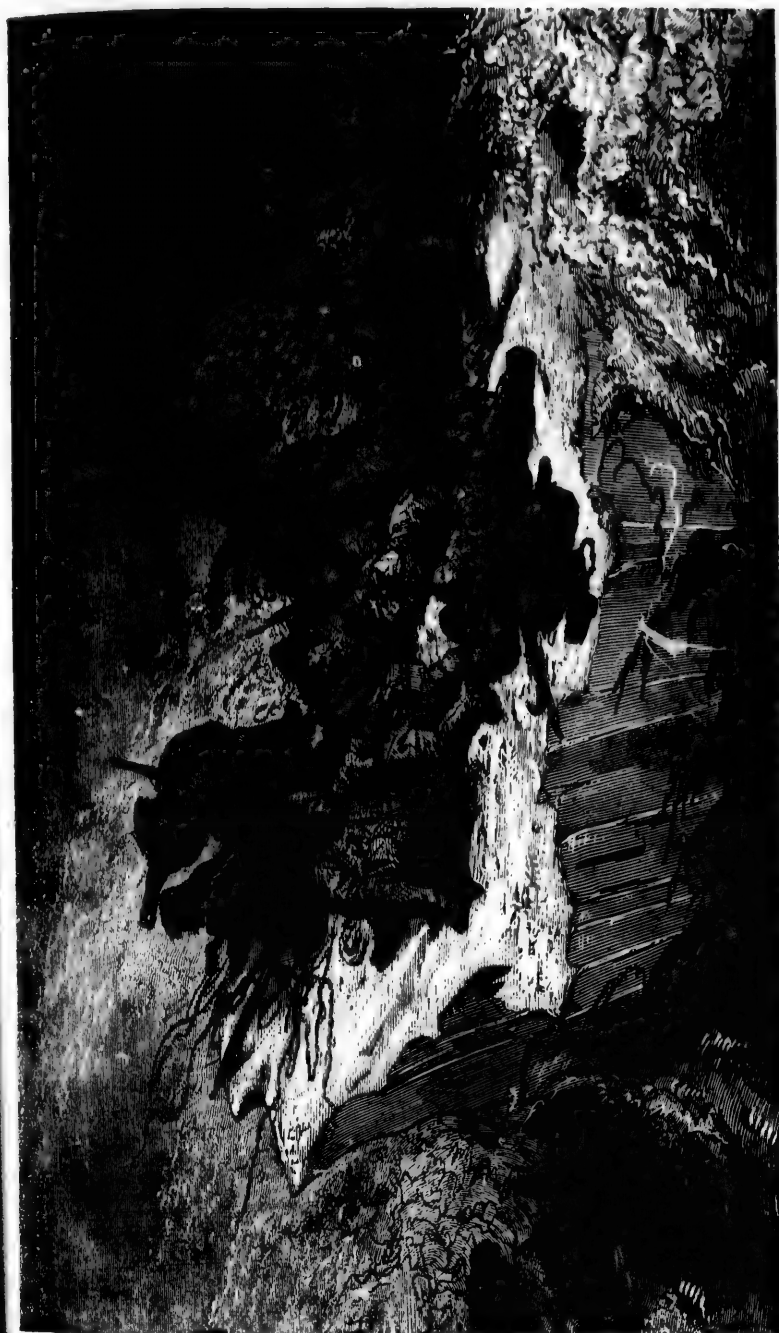
aggregating 1000 pounds, and taking the boat upon a second advance. But owing to the snow, which was very deep, and in the summer time when the thermometer gets as high as 35 or 40 degrees, became wet and soggy, this was impossible. There were eight pieces, and it required the whole force to traverse the distance thirteen times to move all forward; in other words, with the exceptions of two small sleds, only one piece of baggage was advanced at a time, and we had to travel thirteen miles to make one mile good. This continued for the first month of the march, but, of course, as the supply of provisions grew smaller, the labor was reduced, and the loads were reduced to five, but never below that number. During the whole of this time the ice was drifting to the northwest. After having marched for fifteen or eighteen days, DeLong having had two or three good observations of the sun, it was discovered that we had lost twenty-four miles into the northwest, or, after marching for two weeks, we had found ourselves to the north. On his first observation DeLong did not think this could be possible, but two or three days afterwards, after working a summer, he called me to one side and told me he did not wish any of the people to know of it, but that we had lost twenty-four miles into the northwest, and that in case anything should happen it was only proper that I should know the state of affairs. Dr. Ambler, who was passing, and seeing us in earnest conversation, the knowledge was also imparted to him. The sun does not always shine in the Arctic Ocean even in the summer. It may be shining above, but owing to the dense fogs which hang between the ice and it, the sun's face is not seen for weeks at a time. We plodded on in silence, not knowing how rapidly we were being drifted to the northward, but with the hope that, as we travelled across the pack, we might come to a place where we could launch the boats and escape, for this was our only hope; for when we set out we knew we had the grandest march before us on record. A week later we found we had made twenty-seven miles into the south and east, and had apparently stepped off the floe strip to another, which was to the south, and running to the southeast. DeLong told me to tell the crew of this. As we marched along I said: 'Well, boys, we have made twenty-seven miles good into the southeast.' A cheer went up from one end to the other of the stragglers, and one of the men said: 'Next week we'll make sixty miles.'

"When the party approached Bennett Island, which was the first land touched, the floe was so much broken that their labor was increased by being constantly obliged to build bridges of ice, or to launch their boats and haul them out on the opposite side of the floe, or to make rafts of great floe pieces, putting the whole of the equipment upon it. In launching the boats it was necessary to take out all the load, as it was feared that unless this was done the boats' backs would be broken. The party reached Thadiouska Island after camping ten days on the ice-pack and coming through difficulties which it was thought were impossible to surmount. When we attempted to land on Thadiouska Island," Mr. Melville went on to say, "we had great difficulty on account of the shoals caused by the erosion of the New Siberian Islands, of which this is one. The whole surface of the islands has the appearance of myriads of hay cocks. During the summer the snow is melted and washes the soil into the sea. The winter freezes the whole; at the first of summer the earth is loosened and great masses go crumbling down into the sea; the passage of the ice to the Arctic Ocean is also grinding away the earthy part of the islands. And so all the time, by the action of the elements and by the ice-pack, the whole chain of islands is being denuded of earth from the mouth of the Lena through the new Siberia Islands, Bennett Island and Henrietta and Jeannette Islands. The great rivers of Siberia are carrying the silt from the south of Siberia, and are thus filling up the Arctic Ocean; but this does not account for the great shallow sea to the northward of Siberia. We found all the way from the Lena Delta to the New Siberian Islands the remains of ancient forests embedded in the soft soil of the islands, which are being rapidly eroded away by the ice. Where Seimanoski was once one island, it is now three, the sea making a clean breach over it from east to west. We saw great masses of earth, hundreds of tons at a time, rolling down into the sea.

"The mouth of the Lena River was once north of where the New Siberia Islands now are, and the rocky islets that now dot the way from the promontories from the mouth of the Lena are the only remains of what were once the earth-clad hills of the Lena Delta. The same effects are still going on in the Lena Delta itself. Were the conditions the same as at the mouths of the Mississippi or the Nile, in the temperate climate, the Delta would be advancing into the ocean;

but the everlasting ice keeps moving down, carrying away the deposit more rapidly than the river can make it, and the ice distributes it all over the Arctic Ocean. We have found specimens of earth of all kinds three hundred miles away from the coasts where the ice had been embedded in the banks and carried it off. Some of this may come from northern islets, but we all know, who have observed the currents in the Arctic Ocean, that the ice and driftwood from the mouth of the River Lena are carried first to the westward, and north and west, and then to the south and west, and the windrows of wood on the eastern shore of Spitzbergen are carried from the mouths of Siberian rivers, and it is but natural to suppose that the ice follows the same general drift as that of the wood. In the Lena Delta I have seen trunks of ancient trees, sixteen inches in diameter, protruding from the banks forty feet above the level of the river, and the earth is constantly tumbling down, exposing more timber embedded in the banks.

"As soon as the whale-boat parted company with the first and second cutter, it became evident that it would be necessary to heave to and set about making a drag or sea-anchor, the philosophy of which is that if the boat is brought around with the head to the sea, and the drag made so that it will remain immersed, it will keep the head of the boat to the sea to receive the seas head on, the boat and drag gradually driving to the leeward, the drag having sufficient hold on the water to keep the boat's head to the sea; but should the sea-anchor come home, or the line part and the boat broach to, it would roll over like a log. The drag, in this case, was made of the tent-poles lashed together and a piece of hammock-cloth. We rounded to about nine o'clock that evening (September 12th), and rode with the sea-anchor until the next evening at five o'clock, during which time the people were kept busy bailing to keep the boat free of water, and the drag was assisted by means of a steering-oar in keeping the head to the sea. Up to this time Jack Cole had acted as coxswain of the whale-boat, having the reputation of being one of the best fore-and-aft sailors out of New York, and having been one of the watch officers on Bennett's yacht during the famous sea-race of the Dauntless, but he commenced to show signs of weakness during the heavy weather of the preceding two weeks. At this time I had to divide the watches in



AN ARCTIC SCENE—ON A FLOATING ICEBERG.

steering the boat between the three seamen, Leach, Mauson, and Wilson.

"After leaving Wassilli Island," said Chief Engineer Melville, continuing, "the first sea that broke over the boat destroyed all the snow we had from which to make our drinking water, and from the time we left Seimonoffski Island until we got to the mouth of the Lena, five days, we were without drinking water. After the gale had abated on the evening of the 13th, the boat was put about, and our course laid to the southwest to Cape Barkin, the point to which I was ordered to conduct the boat in case of a separation. On the morning of the 15th the boat grounded in shoal water off the Lena Delta, but so far from land that it was invisible. We thought there were traces of the loam of land to the southward. The young ice was making along the shore a quarter of an inch in thickness, impeding the progress of the boat. From our information of the Delta we were confident that we would find natives at the northeastern point. My instructions were that, if I struck the north coast, I was to proceed to the east to Barkin, and there get a pilot to conduct me into a branch of the river and to the nearest Russian settlement; and my instructions were also to pay no attention to the others, in case of a separation, until I got to a place of safety, after which I was to pay attention to the rescue of the others. I worked to the east along the shore, every attempt to go south being foiled by the shoals, until toward evening, when it looked like another gale. I put the boat under easy sail and stood to the east, intending to go in that direction for twelve hours, and then to the south and west twelve hours, knowing that the east coast of the Delta ran north and south, and that the north coast at Cape Barkin ran east and west. I also knew that while three mouths discharged to the north, thirteen discharged to the east, and that, failing to get to Barkin, the chances of my reaching a settlement were better on the east coast than to find one on the north without a pilot. Many persons have said I was lucky to get in on the east coast, but it was on the score of judgment, not luck, and I selected the course I did for the reasons I have given.

"At six o'clock on the morning of the 16th, we put about and stood to the south and west, hoping to reach an east branch, but we had had such a fresh breeze during the night, with a current to the eastward, that when I put about, hoping

to make land, I found it took thirty-six hours to regain what I had run off in the twelve hours before. Finally, we raised mountains to the south, in the Bay of Borkhia, but being almost certain of finding natives at some branch of the river, I stood to the south and west until I raised two low headlands. The men were almost crazy for water, and eagerly dipping it from the boat's sides declared it was fresh. I had educated myself to go without water during the Jeannette's drift of two years, drinking but two glasses of water between meals, depending upon the coffee at breakfast and dinner, and the tea at supper, and on the march I kept chewing a piece of wood to induce the flow of the saliva. When the men of the boat's crew appeared to be in extreme agony for a drink of water I had no feeling of thirst. To keep them quiet I ordered a pot of tea to be made of the water, when the salt became very apparent and it was rejected. I then told the men they could have all the water they wanted at the headlands we had just seen, and, as we could make out logs on the beach, we were all eager for a landing. There was a slight swell, and the boat broached to and nearly swamped, and it was with difficulty that we got her off, and kept the middle of the channel, and worked up into the river.

"The question now arose in my mind whether to obey the orders I had received and go to Cape Barkin, or go on up the river. Peterman's chart, the only one I had, was dotted all over with marks indicating huts, and other information led us to suppose that the Delta was swarming with native life. Some urged that I should go to Barkin, and I finally said that if I did not effect a landing by noon I would turn back and go to Barkin, though loath, after the experiences of the last few days, to put to sea again. At noon we were about to go about, but some one said that the river was as large as the Mississippi, and must be a main branch of the Lena. I only wanted some good reason not to go to sea, and we went on up the river and effected a landing at an abandoned hut at evening. We were so cramped as to be barely able to walk, being frozen from the knees down. Two or three of the party who had been exempted from duty had rubbed their limbs with towels, but I and the majority of the working force had our feet and legs frozen so badly as to be unable to walk, and we had to creep ashore. Mooring the boat, we waded around in the icy water to increase the circulation and to

withdraw the frost from our limbs. A fire was built in the hut, and after we had removed our foot-gear and went near the fire, the pain was excruciating, and we had to withdraw. Water blisters appeared from my knees to my toes until my limbs were in a condition as if they had been scalded, and the feet were swollen so that it was impossible to get my moccasins on without cutting them.

"The next day, from the trend of the river, and from my study of our only chart, I believed it to be the main east branch of the Lena, many landmarks, such as islands in the mid-channel, adding to the evidence. There was but one river on the chart that trended to the north and west on entering, and this particular branch trended from north by west to west-northwest, and never at any time to the south and west. We continued on until we came to a bold headland, where there was a short bend and a long stretch of river due south, confirming us in the belief that we were in the main branch, and that we had turned the point which would lead us to where we could find natives within ten or twelve miles. I was entirely mistaken, however; I had entered an east branch, and the branch did trend to the north and west, but when I turned to go south I found I was still in the Delta. We camped at this headland, some of the party going up to the highlands. This we called 'Mud Camp,' because of the oozy bed of the river, in which the majority of us slept. The next morning it was with difficulty that we got away, on account of the crippled condition in which we were. We stood to the south with a fresh breeze, the boat taking in water. Coming in sight of two or three well-built huts on the west bank I concluded to haul out and rest and dry our clothes, and for this reason called it the 'Dry-out Camp.' From the evidence of the fish ends and trails it was clear that the natives had left but a few days. The next morning we stood to the south, intending to keep along the west bank of the river, but when the narrow branch expanded into a great bay I then made up my mind that I was still in the Delta. Proceeding to the south, on the distant hills I raised several huts, which we eagerly watched for signs of life. I told the crew to work with a will and we would stop there for our dinner, but we found ourselves in a labyrinth of quicksands, sand-spits and shoals. There was plenty of water thinly laid on and very much spread out, the

land appearing in spots. It was impossible to go a hundred yards without bringing up, but we at last effected a landing to the south and east of the village, watching for a sign of life—smoke, for instance—but we were too far away to go to it on foot or get the boat around. We ate our modicum of pemmican and prepared our tea, which we had carried in a bag, and which had been washed about in the salt water in the bottom of the boat. Up to the time of the separation of the boats the rations had been a pound of pemmican and a half pound of bread, but when the latter gave out the pemmican was increased to one and a half pounds per man per day. As soon as we parted from the others I put the men on half the former rations, or about three-quarters of a pound, which was equal to three cubic inches.

"Having had our dinner, we got ready to keep on by the west bank against the current, and were about to shove off when we saw three canoes and three men paddling towards us. We pulled towards them, when they showed signs of fear and a desire to scud by us. I beckoned to the natives to approach, but they kept in the distance shaking their heads. Two of them at length passed us, but one younger than the rest came alongside the whaleboat, crossing himself and displaying a religious medal which he wore at his neck. I directed one of the men to get out a piece of pemmican and offer it to him, and at the same time told another of the crew to look away, but when the canoe was close enough to seize and hold it. He did so, and this alarmed the native very much, but I tried to soothe and reassure him by showing him the hatchets and various other articles in the boat. By this time the current had drifted us down to about where we had camped, and the other two natives had hauled out. We accordingly landed, and I set up the tea-kettle, and then the others came up and joined us. They had been fishing at the place to which I was trying to get during the preceding day. None of us could understand their language, so we had recourse to signs. The sailors found an old goose, and fish and venison, all of which, excepting the venison, was decayed. We then began to form a vocabulary of the Yakut tongue, the natives soon understanding what we wanted, and readily telling us the names of objects which we pointed out. I sketched a reindeer, and the natives at once exclaimed 'olean,' and in this way we rapidly wrote down fifty or sixty

of their words. We drank our tea, and supposing they might like some of our alcohol for a drink I put a tablespoonful in the tea for the natives. They took to it kindly, and one of them, who was called Theodore, wanted to take a drink from the demijohn, but I prevented him. Finally I took a knife, which one of the natives carried, and by signs asked him where he had gotten it. He immediately began to imitate the motions of a blacksmith beating the blade into shape, and said, 'Bulunga! Bulunga!' This turned out to be a Cossack settlement on the Lena, Bulun, and this was the first intimation I had that they knew of its whereabouts. I at once drew in my note-book a sketch of a village, putting two mosques in it. The Yakut rubbed out one of the mosques and again exclaimed: 'Bulunga.' I then drew a picture of the whale-boat with all the party in it, and represented one of the natives in his canoe leading the boat, the other two paddling along after us. They understood this, but when I insisted that they were to take us to Bulunga, they made me understand that it was impossible, because of the ice in the river, which was not strong enough to travel over, but yet was thick and heavy enough to impede navigation.

"We then told the natives," continued Mr. Melville, "that we wanted to get to a place where we could eat, sleep, and dry our clothes. They agreed to pilot us, and we followed them to Borkhia, the place on the headland to which I had been trying to get all day. The place was deserted, and but two of the huts were found to be tenable. The names of the natives were Malinka Tomat, or Little Thomas, Karini and Theodore. That evening one of them said he would go for the head man of the village, and during the night Karini left the camp for this purpose. In the morning, being anxious to push on to Bulun, and being unable to persuade Malinka Tomat to pilot us, we pushed on to the south, but soon found ourselves in the great bay which had devilled us so before. By 3 o'clock in the afternoon the weather became bad, and we went back; but night set in, and I sheltered the boat under the lee of a shoal, driving the tent-poles into the mud to hold her. We passed a terrible night, and those who were not frozen before were badly frozen. In the morning the snow had fallen, changing the whole appearance of the country, but I landed near our camp, and the men soon found Borkhia, and we went back there. As we approached, four

natives came to greet us, the fourth being Wassilli Koolgar, or 'William with the Cut Ear,' the head man of the village. We remained there over night, Wassilli assuring me that we could not go to Bulun; but I was so urgent that he finally said yes. I called his attention to the fact that our boat drew thirty inches of water, while his required but two or three inches. He put his paddle into the water at the stern of the whaleboat to gauge her depth, and cut a notch in the handle, showing that he fully comprehended what was expected of him.

"The start was accordingly made, two of the canoes going ahead and one in the rear, but we found that Wassilli was unable to pilot us over the shoal. He stood to the north and then to the east, taking us out to sea to one of the outlying islands, a voyage requiring three or four days. During this trip they set their nets and caught us some excellent fresh fish. Our legs were badly swollen with frost and the hard labor which we had had to perform. On the fourth or fifth day with the natives we arrived at the village of Arree, which consisted of about a half dozen huts. We then learned that Wassilli had been shot in the arm, and was too weak to go on any farther with us then. He went off and presently came back in a boat which had been made from 1 1/4-inch plank, shaped like a whaleboat, in which were seated a piratical-looking man named Spiradon, two women, each of whom had lost an eye, and a young man, who was said to be Spiradon's nephew. This youth, Kapiocan, was to pilot us. They brought us a small amount of provision, consisting of a goose within the carcass of which three others were stuffed. This was to be our food supply, with what fish we could catch, until we reached Jamavialock.

"We remained at Arree over night, and went on for two days, arriving at Jamavialock at noon on the 26th of September, 1881.

"The natives came down to meet us, and among them I noticed a red-headed Russian exile and ex-soldier, who had been exiled for the theft of ammunition. On landing, Leach and I were so much crippled that we had to crawl about on our hands and knees. We, with Lauderback and one or two others in the same condition, sat down on a dog-sled which was near, whereupon the women hauled us up to the hut of the starosta, one Nicholai Shagra.

"A description of this hut is as follows: it was rectangular in form, 16 by 20 feet, and on the interior was 9 feet clear to the ceiling, the sides sloping inwards from the base like a truncated cave. It was built of neatly hewn timber six inches wide, planted in the ground and inclined inward, so that the base would be about thirty inches from a perpendicular line let fall from the tops of the planks. The roof rests on stringers at the top of the inclined timbers, and consisted of close hewn timbers calked in with reindeer moss. The hut was banked up with earth to a height of three or four feet, and a thickness of three feet, and over this a layer of moss, one foot thick, was placed. The door was at one end of the hut, and immediately behind the huge fire-place, constructed of a box, four feet square, and raised about four feet above the ground. The floor was of timber, and around the hut, under the sloping sides, were the beds or berths, each six feet long, about thirty inches wide and separated by partitions. There were two at the far end and three on each side, making eight berths in all. The chimney was built up from the fire-place and led through the roof, being of sticks covered with clay from the bottoms of the ponds. Dry lumps of this clay are usually kept stored in the huts to repair any damage which might be done to the structure. At the rear were either one or two windows, sixteen inches square. In the summer time these are left open, but in winter they are closed by slabs of ice. Early in the winter season, when the ice is from four to six inches thick, sixteen or twenty slabs are cut and stored upon the top of the house. When the cold weather sets in one of these slabs is set in place, and a mixture of snow and warm water is put into the chinks. This freezing all the openings are closed, and light is admitted through the ice. The inner surface is scraped with a knife or piece of tin every morning to remove the hoar-frost which forms in the night and which obscures the light. The temperature of the huts ranging from 60 to 90 degrees, the ice is gradually destroyed from the inside, and in a few weeks is pierced with holes. Another slab is then set in its place.

"As you go into the hut, at the right-hand corner from the back of the fire-place are stow-holes, in which food and fuel are kept. At the far end of the room, on the right, is the stall, or berth, occupied by the owner of the hut, while to the left is the guests' chamber. Over this are usually placed

portraits of the saints and other religious pictures. Along the right side are the berths of the relatives of the family, descending down in regular order to the corner, which is occupied by some old pensioner. I have never been in a Yakut hut where there was not some poor person in one of these pens. The stalls on the opposite side are where the strangers are located. In this particular house to which we were taken, forty people slept overnight. After the fire goes out, the old woman usually goes outside and places a board over the top of the chimney. I need hardly say that under these circumstances vermin are plentiful in the houses.

"When we reached the starosta's hut we at once turned in, and slept until we were aroused for a breakfast of boiled fish. We then went to sleep again, but were aroused at 9 P. M. and given a feed of goose. The geese are killed in the summer, when in the pin-feathers, as then they are unable to fly. They are driven into flocks and beaten to death, the natives killing hundreds and thousands of them in this way. The people ordinarily use bows and arrows, as they have very few guns. The geese are not cleaned at all, but are hung up in pairs by the necks, simply to keep them from being stolen by foxes. All the juices settle to the lower ends, and they become putrid and full of maggots. When the winter comes they are frozen solid, and are then stored away. When the geese are to be used they first hang them up at the fire to thaw out, and I have seen them so putrid that they would drop apart.

"The next day I said that I must go to Bulun, but the native refused to guide me. Towards 10 o'clock, however, the weather cleared and they agreed, but they said that it would take fifteen days for the trip. They then gathered together sixty fish, of about four pounds each, which I was told would be the food supply for the whole party, including Yapheme Koppiloff, the Russian exile. I objected to starting with such a meagre supply, but they pointed to their nets and said they would catch more as we proceeded. I was afraid to go under these conditions, but decided to make the venture. Leach asked to be left behind, saying that he would rather die where he was, but I would not permit it. We got off finally, but about three or four o'clock that afternoon the ice commenced to run one and a quarter and two inches in thickness, and the natives positively refused to go any farther. I was not sorry, and we ran back to Jamavialock in less than

an hour. The natives pulled the boat well out upon the beach, and we were hauled up to the hut again by the women, and returned to our quarters on the 27th of September, this time in a hut by ourselves.

"I now made the natives understand who and what we were," the chief-engineer went on to say. "Upon a table in our hut I placed a large log, to represent the Jeannette, and indicated the boats by small sticks. Illustrating the destruction of the vessel, the log was thrown under the table, and in the same way I told them of the separation of the boats in the gale. I learned from the Russian of General Tcheranieff, the commandant of the district, and I used his name to threaten the natives. I would tell them that, unless they made every effort to get me and my men to Bulun, I would complain to General Tcheranieff, and he would cause them to be punished. I feared scurvy, as I know of a case of a Russian officer and party who died of it in that region, and I know also that there never was a ship that was two winters in the Arctic seas where there was no scurvy. Our limbs were swollen and putty-like, we had no bread to eat, and nothing but the putrid meat which the natives gave us, and I felt it was necessary to push on. The next day the whole bay was covered with ice and the wind was blowing so fiercely that everything had to be tied fast on the island. I saw it was impossible to advance, and we had to sit down and wait for the return of a messenger to the Cossack sergeant, who I learned was in command at Bulun. We therefore wrote out an account of our situation, I in English, Mr. Danenhower in French, Mr. Lauderback in German, and Mansen in Swedish. This I sewed up in an oilskin bag, and placed it in the hands of Nicholai, with orders to forward it as soon as he could."

Mr. Melville and the crew of the whale-boat had reached Jamavialock in the latter part of September. They were almost naked, their moccasins worn out and the full rigor of a Siberian winter was setting in. "We had been there for a week," to take up the story in Mr. Melville's words, "when we heard that there was another Russian in the camp, one Kusma, an exile. He had crossed the bay in some way, though the ice was not yet firm. I sent for him and had a talk. He promised that he would come back to us on the following Thursday. I took him out and showed him the

whale-boat, telling him that I wanted him to carry a despatch to the Cossack commandant at Bulun, and that I would give him the boat if he would bring help. Bulun was 280 versts distant (a verst being 66 per cent. of a mile) across a range of mountains 1,300 feet high. Kusma seemed delighted at the idea of owning such a boat, and he promised that on the following Sunday he would be ready to go. I proposed that he should take Bartlett with him, not wishing to send Danenhower, who had been on the sick-list for two years, but Kusma assured me that he could go faster alone, as he had a short team of dogs, and it would increase the load from 600 to 800 pounds. This was the reason I did not send a messenger with him to Bulun.

"On the evening of Kusma's departure I heard that Nicholai Shagra was to go too. Upon inquiring about this, I learned that Kusma was under the surveillance of the starosta of the village, who was responsible to the Russian authorities for him. They were to be back in five days. By this time the force was getting in pretty good condition. I had complained of the short allowance of food, but it was increased. Eight days passed and Kusma had not returned, and I was growing very impatient. I then expressed a determination to start for Bulun, and set out to march the distance, but I was dissuaded by Mr. Danenhower, who said that we might look for the return of our messenger at any hour, and 'why risk the safety of the whole party by such a march?' I decided that he was right. We waited for thirteen days, when Kusma arrived—on the evening of the 29th of October. He brought us a small amount of provisions, a ball of tallow, some tobacco and two letters, one of which was from the priest at Bulun.

"At last, after fumbling about in his pocket for a long time, he produced a piece of paper, which he gave to me. He explained that he had met two 'Americansk' on the way, and that they had given him the paper. It proved to be a pencil-note from Noros and Nindemann, which said that they had come for help to go to the rescue of Captain DeLong and nine other persons. There had been thirteen in the first cutter, and by this account one was missing. This was the first intimation I had that any of the party was dead. As soon as I got this note I said that we were to go back at once to find Nindemann and Noros. Kusma told me that the two

seamen had been picked up in a hut (at Bulkoor), that they were sick, and had been taken to Bulun, and that the Cossack commandant was to come to meet us.

"Kusma said that he could not start back at once, for the reason that his dogs were footsore, and the natives never drive them two days in succession if they can help it. His excuse for being so long as thirteen days on the journey was that after he had crossed the mountains from Tamose to the banks of the Lena, he found that the ice in the river had broken up and run out, and he had to wait; that when he got to Bulun the Cossack commandant would not let him remain there but started him back at once. I then sought other means of transportation, but Kusma volunteered to go to Tamose, and that we could start the next day, the 30th of October, by getting a fresh team of dogs.

"Seven months after, when I found DeLong and the people dead, I found also his record, on which was written: 'October 30th, Boyd and Goertz died and Mr. Collins' dog.' This was the last entry, written by DeLong on the morning of the day I left Jamavialock to go to Bulun to find Noros and Nindemann, to learn the whereabouts of DeLong, and of the track by which I could go to their succor. The receipt of that note on the 29th of October was the first knowledge any of us had that any of the other boats' crews had landed. It had been the common conversation that it was impossible that any of the boats should have lived through the gale, and even at the moment of the arrival of Kusma the subject of the talk amongst the men was the undoubted loss of the other two boats' crews."

"On the 30th of October," continued Mr. Melville, "Wasilli Koolgar was at Jamavialock with nine dogs and a broken sled, the best he could get. I was not sufficiently clothed for such a trip, having but a pair of cassimere trousers, a sealskin jacket worn threadbare, and half a blanket wrapped around my body. My limbs were frozen from my knees to my toes, and were covered with sores and scabs; my nails were frozen off or shrivelled up, and my footgear was insufficient. We took a small amount of provisions, and started out in the dead of winter to go 280 versts in an open dog-sled. We reached Tamose, where it was necessary to renew the sled, and this kept us the whole of the 30th. We slept there, and the next day started to cross the mountains. All through this

section little huts called 'povarnniars,' or cook-houses, have been provided for the safety of travellers—the traders and natives. At midnight we stopped at one of these and had supper. It was now the 1st of November, but it was blowing so hard that Wassilli would not start until noon, stopping at the second povarnniar, where we met a lot of traders and natives who were bound north.

"When we arrived at the next village, Kumaksurt, the dogs gave out. We should have got to Burulak, but I secured a team of reindeer and Wassilli returned. I slept that night at Burulak, and, getting fresh teams, on the night of the 2d of November arrived at Bulun. The deer-drivers knew what my errand was, and, stopping at the public place, ushered me to an outer part. They pointed to a door, which I threw open, and there saw Noros behind a table cutting a slice from a loaf of black bread, and Nindemann was lying on a berth, the place being cold and miserable. I waited to see if Noros would recognize me, and then said: 'Hello, Noros; how are you?' He dropped the knife and exclaimed: 'My God, Mr. Melville, is that you? We thought the whale-boat crew were all dead!' Nindemann rolled out of his berth, and we shook hands very heartily.

"The men related the story of their trials and toils, after the separation of the boats on the night of the gale of the 12th of September, much the same as I have related. They assured me that it was the general opinion that the second cutter and the whale-boat had been swamped, and they supposed that they two were the only survivors of the whole expedition. They related the difficulties of handling the boat; how the mast was broken off and carried away, and how they finally landed in one of the north mouths of the river, abandoning the boat half a mile from shore; and how Errickson's feet had been frozen from his having to sit at the tiller, rendering amputation necessary, and how he had died and been buried in the ice. After a number of delays they arrived at a point of land overlooking the bay in which I had been so devilled. DeLong concluded to send Noros and Nindemann in advance, he having supposed that he had entered the main branch of the river, and that he was but a few miles from the natives. The men told me of their wanderings, how they were pressed for food, and had given up all hope. They stopped to rest at a hut where they found some broken sleds.

After they had left the 'place of the sleds,' they regretted leaving it and wanted to return, but they saw two huts and crawled into them, unable to go any farther. They found there the remains of some decayed fish, from which the oil had been extracted by the natives for use in their lamps. The men were there two or three days resting. Knowing that they were on the main branch of the river, seeing the mountains at the sides, they were about to start on when Noros complained of weakness, and they stayed a day longer.

"They now heard a rustling outside the hut, and Nindemann advanced with the gun, and, opening the door, saw a native, who dropped down upon his knees and begged not to be shot. He told the seamen he had nothing to eat, but that he would go and bring them provisions. He went off and soon returned with two other natives, food, and a team. Nindemann and Noros tried to make them understand that there were two men to the northward in danger of starvation, but the natives could not comprehend, and hurried them on to a native village—Kumaksurt—and thence to Bulun.

"They complained that since they had been in the village they had had little to eat except dried fish, which the natives had given them, and that they were only treated well when the Cossack was there. There was plenty of meat they told me, but they could not get any. I inquired and found that the starosta, the priest, and the assistant priest were in the village; that the old priest, owing to a love of the ardent, was not fit to be seen, but I saw the young priest, and told him that the two men were in danger of dying from the condition they were in. He replied that he had no authority in the village, and that he did not dare even to enter any house. I then selected a vacant one and told him to open the door. I said my government would be responsible for whatever I did. I then gathered together such utensils as were needed, and got men to haul wood and cook for Noros and Nindemann, and care for them as long as they were there. In the meantime I affiliated with the priest; I told him that I had hoped to have met the Cossack and to have turned him back, and that after learning the facts that he would go with me on the search for DeLong. Not knowing that there were two ways, one for dogs and one for reindeer, I had missed him. As he had left with teams and material to bring my whole party to Bulun, all I could do was to wait their arrival.



THE WALRUS OF THE ARCTIC SEAS.

"I had learned that Noros and Nindemann had left DeLong twenty-two days before, and that then the people had had nothing to eat for four or five days. They said it was useless for me to seek them, as they were all dead long ere this time, and that the bodies would be covered with snow, and it would be impossible to find them. They had recommended waiting until spring to prosecute the search, both the seamen being as yet unable to travel. In the meantime I had written out a full statement of my course. One evening I had gone to see the priest, when an old woman came saying that another Americansk had arrived. I went back to the hut and found that Bartlett had come from Jamavialock with a paper, returned to me from Danenhower, which the Cossack had carried from Nindemann and Noros to that place with the intention of delivering it to me. It was a telegram which they had prepared for the United States Minister at St. Petersburg, but which the Cossack, knowing of my presence, instead of sending to Irkoutsh had carried to me. Danenhower, supposing it to be of importance, had sent it back to me. Bartlett returned by the reindeer teams for the transportation of the party to Bulun. The Cossack had also sent a letter in Russian to the starosta, directing him to supply me with a dog-team, clothing, and to deliver me at the midway station, where the next day I was to meet the Cossack, who would supply the teams for the search.

"At Bulun," Chief-Engineer Melville went on to say, "I met the native who had rescued Noros and Nindemann, and the gollivar or head man of the village—Tomat Constantine Mokloploff—who were to accompany me on the journey; they being able to pick up the trail from where the sailors were found at Bulkoor. We travelled by reindeer-teams from Bulun to Burulak, but were disappointed in not finding Sergeant Baishoff, the Cossack commandant, and Mr. Danenhower's party. We remained there over night, and about eleven o'clock the next morning the party arrived with several dog-teams. After breakfast I gave Mr. Danenhower written orders to proceed to Bulun, and after preparing food and clothing for the entire party, with the exception of Bartlett, who was to be left behind to look for me in case of disaster, and to proceed southward to Yakutsh to await my coming. Before leaving Bulun I had given Bartlett verbal orders, which I reported to Danenhower, to remain at Bulun,

and if I did not come back in thirty days to organize a party to come in search of me. At Burulak Danenhower informed me of the entire breaking down of Jack Cole. During the sledge ride from Jamavialock it was almost impossible to keep him on the sled, and to prevent him from throwing his clothing away. His mind was entirely gone, and he required the constant care and attention of his messmates.

"I left Burulak at noon, with two dog-teams driven by Wassilli Koolgar and Tomat Constantine Mokloploff, each team consisting of eleven dogs. Before starting the Cossack commandant informed me that he had supplied the natives with provisions for ten days, for men and dogs, allowing a fish for each man and one for each dog per day. That evening we brought up at a station to the northward, some forty versts distant, called Kumaksurt, where we stayed over night. The next morning we proceeded to Bulkoor, fifty-five versts off. This was the place at which Noros and Nindemann were found. It is located on the west bank of the Lena, at the mouth of a small stream entering the river, and on a high bank about forty feet above the level of the river. Bulkoor consisted of one polatkin, a balagan, and a storehouse. We found evidence of the two seamen having been there. We turned in for the night, and the next day it was storming so hard that the natives could not be induced to move. There was a gale of wind, and the snow drifted so that it was impossible to face it, and there was nothing left but to camp and await the abatement of the storm.

"The day following we set out at daylight and found the hut known as the 'place of the sleds,' where Noros and Nindemann had stopped, and had burned the sleds for fuel, and to which they wanted to return to die. The two sailormen had informed me that when they left DeLong encamped on the north side of a small branch of the river, which DeLong supposed to be the main one, he had told them to push on, and that he would follow as rapidly as he could in their footsteps. For this reason I tried my utmost to retrace the steps of Noros and Nindemann, in hopes of meeting DeLong or some of his party. We pushed on, following the west bank, as DeLong had directed the seamen. They had informed me that after leaving DeLong up to the time they had reached the place of the sleds, they had not lodged in any hut, and our only guide was to keep the west bank of the

river Aboorde. The natives said it was ninety versts to the nearest povarnniar. It had come on to storm and blow, with a driving snow-storm from the north and east.

"We struggled on until night, when we dug a hole in the snow bank and camped for the night. It stormed so that it was impossible to build a fire, so we ate our raw frozen fish and crept into our sleeping-bags. The mode of camping in the snow," explained the explorer, "is as follows: The natives with their shovels, which they always carry with them to dig the snow from their traps or from the doors of the povarnniars, dig a hole six feet square by three feet deep in the bank, throwing the snow to the windward. The sleds are then arranged to the windward, the sleeping-bags put in the bottom of the pit, and the dogs on top of them to keep us warm. The sleds being to the windward, the wind and snow will ricochet, the blast driving over the sleepers beneath, the snow gradually filling up the pit and keeping them warm. It matters little how cold or how miserable a man may be when he first crawls in, even when the thermometer is 40 degrees below zero, he will warm up with a gentle glow and remain so four or five hours. In the meantime the driving snow gets in the interstices of the bag, filling in around the neck and hood and sleeves; the warmth of the body melts the snow and the sleeper becomes wet and begins to chill. Therefore, every four or five hours he has to be awakened and made to turn out and get his blood in circulation; otherwise a person would be very apt to freeze. For instance, on this occasion, the snow had driven in my coat, and thawing had wet my sleeve. I was aroused by a sharp biting pain in the back of my left wrist, and hastily pulling my sleeve away I removed with it a piece of the skin which had been frozen to my coolytang or jacket.

"In the morning it was still storming, but we ate our raw fish and proceeded along the west bank to a place designated as that of 'the two crosses,' by the two sailor men. We found there two abandoned huts and traces of where the two men had been searching for food, but I saw no evidence of the De-Long party having followed the trail. We had now been 48 hours without warm food, and it was still snowing and blowing terribly, but the huts were uninhabitable. The dogs were exhausted and it seemed impossible to go on. The natives had been hauling the sleds, but I was so badly frozen that I

could not run alongside the sled to keep up the circulation and I was suffering in the lower limbs terribly. There was nothing to do but to camp down in the snow a second time. We had now arrived at the mouth of the Lena river proper where it debouches into a great bay, the place being marked by a magnificent landmark—the 'stolb,'—which in Russian means 'a stone column' like a pilaster. The seamen had told me that in wandering across the bay seeking for the river they passed around the base of the stolb. We searched the sand spits and shoals in the vicinity, and as night came on the natives said the nearest hut was a povarnniar at Mot Vay, 25 versts distant, on the west bank of the river. We reached there some time after midnight. The natives cleared the snow from the door and we crept in, to find the interior partly filled with snow because of a board in the roof having been left off. The natives murmured at this, but we soon had a fire, the sleds were unloaded and we made a kettle of hot tea.

"As soon as the fire was lighted I noticed that the sticks on the three sides of the floor were disarranged and removed from their usual place, and had been arranged with the ends towards the fire, the farther end raised up like a couch or the beds of the North American Indians. I at once called attention to this, and asked if that was the Yakut custom, the natives replying that it was not. It struck me that some of the DeLong party had slept there, and I supposed that it had been Alexei sent out as a second search party. In the morning I found a leather waistbelt with a buckle that I recognized as having been made on the Jeannette. I made a further search for evidence as to who might have been there, bearing in mind that the two seamen had never been in any hut until they reached the place of the sleds. I felt that I was one step in advance of where the seamen had been, and that I was on DeLong's track, but I subsequently found that Noros and Nindemann had slept there and had forgotten all about it, and that the belt was one which Noros had used to strap a blanket around him."

"When I was ready to start," continued Mr. Melville, "the natives refused to go farther north, saying that they had no provisions. This exasperated me, as I had the assurance of Baishoff that I had a ten days' supply for men and dogs. Persuasion was useless, and I seized the dog-stakes and laid

about me across the heads and shoulders of the two Yakuts, who ran away. I found I had made a mistake, and fearing they would desert me, I seized a gun and fired—not to shoot them but to bring them back. As soon as I did this they dropped down upon their hands and knees, and screamed 'Finstocki sok,' no gun, and crawled back. After they had returned I loaded the gun again and demonstrated how well I could shoot by firing into the side of a hut, tearing out a place a foot in diameter, much to the fear and astonishment of the natives. I made them understand that I must go on.




A BATTLE WITH BLADDER-NOSES.

They assured me that if I did I would die, they would die and the dogs would die; that we had nothing to eat and the dogs nothing; that it was 250 versts into the northwest to the nearest settlement; that the dogs were broken down and unable to travel, and I was unable to walk. They unloaded the sleds to show me the provisions, I having thought they were lying. I assured them that we had plenty of food while we had the dogs; that ten of my friends were dying of starvation, and that I must go on. They replied that my people were dead, and that there was no reason for the rest perishing for dead men; that in the spring, when the snow was

gone, we would find them. I insisted that we must go on as long as the dogs lasted, at which they laughed, and said I would not eat the dogs. I assured them I would not only eat the dogs, but that when the dogs were gone I would eat Yakut. This startled them, and they immediately began crossing themselves, horrified at the idea, but it had the desired effect, and they started reluctantly, murmuring and crossing themselves.

"We followed the west bank of the river as directed by the seamen and as DeLong had directed them, but emerging from Mot Vay, I found there was a perfect labyrinth of mouths of the river. All were frozen over, it is true, so that we could sled, but the headlands rising all the way from the west around by the north to the east as far as I could see, showed there were the mouths of a dozen rivers, and as the natives said the nearest village was 250 versts into the north-west, and that the road lay along the west bank of the main river, I proceeded, visiting several huts at the dividing of the rivers. We found offal of all kinds, refuse from fish, entrails, hoofs and other meat which had been thrown in the ash heaps. These we gathered up and kept for food for ourselves and the dogs, and continued on until we reached Cath Carta, the place of the goose, being a favorite hunting-station and the property of Tomat Constantine Mokloploff. Here we remained for a rest, and roasted some of the hoofs and fish heads for food, the natives pulverizing some of the reindeer horns. The deer having been killed when the horns were in the velvet, being then soft and spongy and filled with blood, they made a sort of meal, of which we ate, the blood and bone giving distension and some nutriment."

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CHAPTER XV.

MELVILLE'S NARRATIVE—(*Continued*).

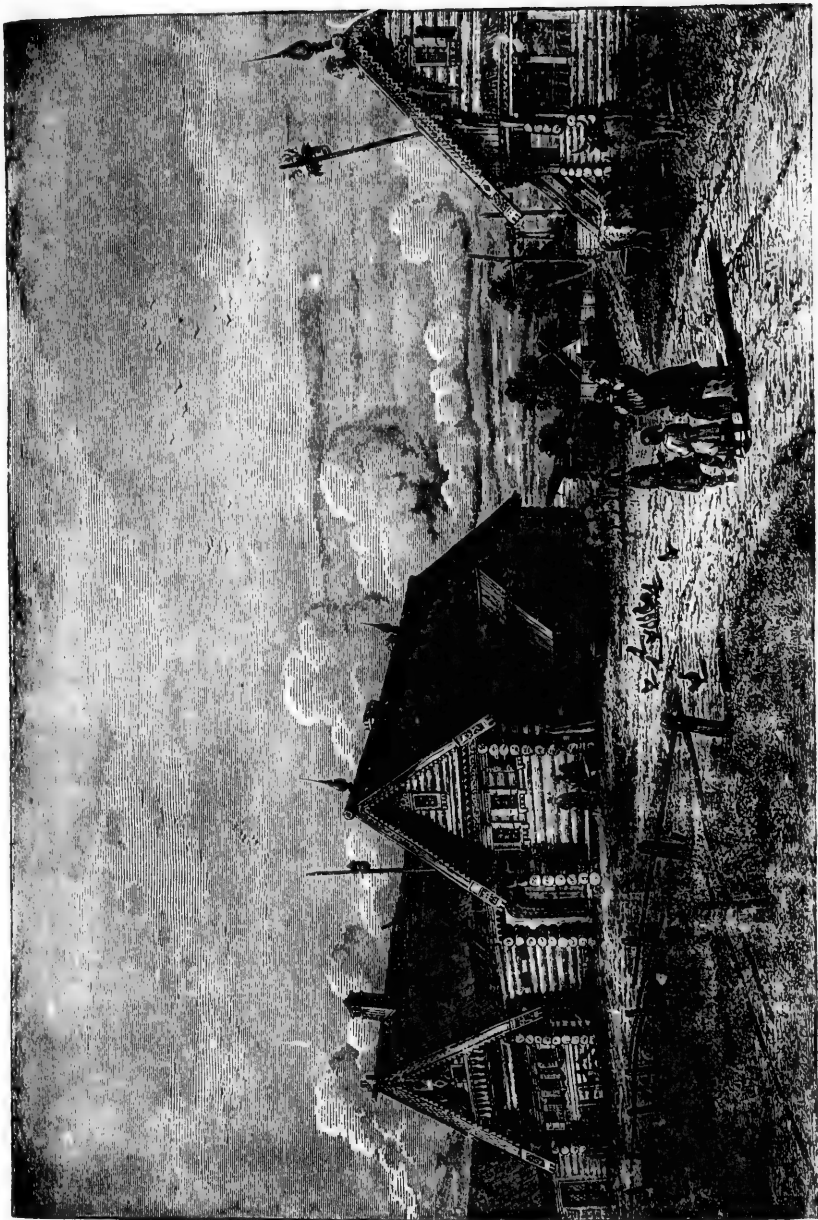
In the Lena Delta—A Yakut Yourt in Winter—DeLong's Records Found—Following up DeLong's Trail—Recovery of the Records of the Jeannette—Retreat to North Bulun—Journeying during a Siberian Winter—More Traces of DeLong's Party—Retreat Toward Bulun—On the Lena Delta.

CHIEF-ENGINEER MELVILLE in continuing his narrative of his search for DeLong and his party in the Lena Delta said:

"At Cath Carta the natives informed me that by starting early the next day we could make a forced march and reach a settlement before midnight of the night following. We accordingly set out at early day, in the teeth of a gale, the dogs being so footsore they were barely able to crawl along. We travelled on in this way all day, the natives at times losing the track and wandering about until they reached some familiar landmark, or until they found marks which they had set up themselves. These were called 'nyacks,' and consisted of two sticks set up in the ground and a third resting in the crotches at the top. This third stick was arranged either in the direction of the points of the compass or toward the nearest village. If the natives found that they had lost the way, we continued in the direction which they thought was the proper one until we got to a nyack, when they would take their direction by that, taking their bearings also by the wind.

"I was pleased to see with what accuracy the natives would lay down the dog stakes when I would request them to point due north or south. They would poise the staff for a moment and then lay it on the snow, and when I would set up the compass I seldom found a variation of half a point from the true course.

"We journeyed all day until night, and being cold and miserable, I kept asking the natives how soon we would get to our destination, to which they answered each time 'in a little while,' until finally I got tired and stretched myself out



A SUMMER SCENE IN RUSSIA—SHOWING THE LOG-HOUSES.

upon the sled to sleep. This alarmed the natives very much, as they feared it was the frozen sleep of death. At intervals they would stop to arouse me, crying out 'balagan major.' Each time I would find that no house was in sight, and it finally resulted in my replying 'balagan sok'—'no balagan.' This continued until after midnight, when from the vivacity of the natives, and the manner in which they urged the dogs forward, I knew that we approached a settlement. I was barely able to sit up, but the teams stopped, and the natives raised me up and led me forward to where a flame seemed to be coming out of the snow bank. The dogs finding themselves free of their load started ahead, and the natives let go of me and ran to see after their teams, while I fell on my hands and knees. Seeing the flame, however, I crawled towards it. In the meantime the howling of the dogs had roused the village, and presently I saw flames jetting up out of the banks on all sides of me. The snow covered in the huts entirely, and as I proceeded I saw the secret of the flames—it was the flash of the torches at the entrances of the huts. The women had lighted their flambeaux at the fire and had come to the outer weather doors to see who had arrived.

"In describing a Yakut yourt or balagan," continued Mr. Melville, "I gave an account of it as it appeared in the summer. In the winter, however, additional outer apartments are constructed, sometimes as many as three opening one upon another. In these rooms the food and hunting-gear are kept and the dogs sheltered. The successive snows of winter bury the hut completely, and it is necessary now to have steps from the ground up to the top of the bank. It was at the mouth of one of these entrances that I first saw the torches. I crawled to the mouth of one of the caves, and, being unable to arise, I rolled down to the bottom of the steps; the women started back, wondering who the stranger could be. I called out: 'How are you, girls? Help me up!' They looked at me for a moment, for my face was frostbitten and covered with scabs, and my beard and hood coated with frost and rime, and I was not very presentable. They soon helped me to my feet, however, and seeing that I was lame, assisted me through the different doors, conducting me to the interior, and seated me beyond the fireplace, in the berth usually assigned to guests of the house. They then began to remove my wrappings and mittens, and the deerskin cooliyang

and trousers, which are always put outside to prevent their destruction by the heat. They then prepared to remove my moccasins in the same way, I having been supplied with new ones at Bulun, which came up above the knees and were secured at the waist. They rolled down the tops to the knees, but on proceeding to remove the boots they noticed that the operation was causing me pain, and upon examining my limbs found that as they stripped the boots down they removed the skin from my legs, it having been frozen and matted to their inside. Upon this discovery they gave a cry of horror, and set about to relieve me, cutting the seams at the sides. The boots being removed, they applied a coating of goose grease to my limbs, but they had no bandages, not having muslin or any other material of that sort.

"The house was filled by this time with the people of the village, who had crowded in to see the stranger. Some person had put the kettle on, I provided tea and sugar, and they soon had some fish boiling. Marvellous were the stories that the two drivers were retailing to their hearers—about my persisting in coming after they had assured me that we had nothing to eat, and that we would all die; how I had beaten them with the stick, and finally of my shooting at them, and to cap the climax, about my threatening to eat the dogs and Yakuts. This latter incident brought on an immense amount of crossing among the Christian natives. They soon learned the story of the arrival at Bulun of Noros and Nindemann from DeLong's party, and of the rescue of my party at Jama-violock, and that I now was on a search for ten dead men. They appeared to descant on this fact, and thought I must be crazy, as I had no means of paying them, and yet threatened to shoot and eat them, and it seemed to them to be the craziest thing of all that I should hunt for dead men now when they could be found easily a few months later. I gathered this readily from my knowledge of the Yakut tongue and from the astonishment of the natives.

"Presently I heard them speaking of a 'boomarda,' or paper, and that they had seen or heard of some of the party for whom I was searching. At this time a superb-looking Yakut advanced bowing, and, with his cap in his hand, presented me with a paper, which I opened and found to contain a record left by DeLong in one of the huts on the line of his march along the Lena river. Nindemann had told me of his

having left these records in as many different huts before Errickson died, and that in the hut in which Errickson expired was a gun and ammunition and another record, and that an epitaph-board placed over the door recorded the death of Errickson. I inquired of the native where this paper had been found, and learned that it had been picked up in a hut at Ballock, on the east bank of the river, fifty-five versts due east of the village in which I was located. This man, who was the brightest and most intelligent Yakut I saw while in Siberia, was named Lakinte Shamula, and he owned many huts and traps, seeming to be one of the leading men in that country or section. After some time, an old woman, after rummaging about in the pocket of her coolytang, fished out a paper which had been found by her brat, or son—an excessively bashful youth. Upon questioning him, he told me that he had found it in a hut called Osucktock, seventy or seventy-five versts to the east and south. I then learned that there was another paper in an adjoining village, which they would get in the morning, which, along with the gun, was in the hands of the starosta of the village. After a meal of fish and tea, the house settled for the night. That house was sixteen by twenty-two feet, and forty adult persons slept in it that night.

"The next morning it was storming furiously, but I found that the starosta had sent after the paper and gun, and toward eleven o'clock they were brought in to me, accompanied by a Russian exile, who came as an interpreter, supposing that I might be able to converse more freely in Russian than in Yakut. We failed, however, as I did better with the Yakut, Tongese, and Russian I had learned at Jamaviolock. The third paper proved to be the record left by DeLong at the junction of the main branch of the Lena leading to the north and a branch running into the northeast called 'Obibuit Yasia,' and in a hut called 'Usterda,' about ninety versts southeast from the village.

"Here, indeed, was information for me," continued Mr. Melville. "I had the three records that had been placed in regular sequence by DeLong, and had been found by the natives and carried to 'Orseva,' or North Bulun, where I then was. The record left at the first station stated that DeLong had landed a few days before on the north coast of the Delta; it related the circumstances of the loss of the *Jeannette*, and stated that

he had cached the goods, log, chronometer and other boat gear on the northern shore of the Arctic Ocean, marking the spot by a tall flag-staff. The paper also stated that the boat having been abandoned $1\frac{1}{2}$ miles from the shore, the party had proceeded to the hut on foot; that they were about to proceed to the south; that they were all well with the exception of Errickson, who was suffering from frost-bite; that they had three or four days' provision, and they had seen several reindeers, and had no fears for the future. DeLong also spoke of the separation of the boats on the 12th of September, stating that he had seen nothing of the second cutter or whale boat since that time. The second record left at Osucktock stated that the men had killed two deers and had rested there for a time, but that in the morning the party would proceed to the south. The third paper, found at Usterda, stated that they were obliged to camp down for three or four days, owing to the impossibility of crossing the river; that Errickson was suffering from frozen feet, the Doctor having been obliged to cut off his toes, and that it had become necessary to haul Errickson on a sled; that they had waited for the ice to form on the river to enable them to cross, but that on this day they would cross and would follow the west bank to the south end in hopes of meeting a settlement.

"This was definite information for me, and as I had lost the trail coming from the south it seemed plain for me to follow it up from the north to the south, as directed by DeLong's records. While at North Bulun I made up my mind that, owing to the weather DeLong had experienced, the number of days Noros and Nindemann had left them with no food, they having been subsisting on seal-oil, glycerine, and alcohol, the party were all dead; or that if they were in the hands of natives they were as well off as I was. I decided to go to Ballock, the northernmost hut at which the first record was found; from there to proceed to the shores of the Arctic Ocean, not more than fifteen or twenty-five miles distant, and to gather up all the books and papers, and other articles belonging to the expedition; to retrace my steps to Ballock, Osucktock, and Usterda, cross to the west bank on DeLong's track, and to follow the west bank to the south, as directed by DeLong, and as I had been told by the two seamen. Being unable to wear moccasins, I had the women make me sort of 'mittens' for the feet and legs. I made the natives under-

stand that I must have new teams and a supply of fish for men and dogs for ten days. Wassilli's team having been used up, I released him to return to Jamavialock, being assured by the starosta that he would supply me for my journey. Then, to make sure that I would not be deceived, I made them throw out from the storehouse a day's supply of fish for men and dogs. I then returned to the hut to put on my clothing for the journey, and when I came out the sleds were packed and lashed ready for the start.

"The wind abated, and we made the run from North Bulun to Ballock in a few hours, arriving there at evening. We found the hut where the natives had discovered the record, and saw the evidence of DeLong's party having been there. We slept at Ballock that night, and the next morning, after I had told the natives where I wanted to go, we started along the east bank of the Lena river proper until we came to the ocean. The natives were much interested, and commented upon the 'boos-barrow,' or sea-ice. After turning to the eastward and going about two hours, we soon sighted the pole arising from the bank, as described in DeLong's record. We broke open the cache, in which I found the log, chronometer, navigation-box, sextant, marine glasses, and a lot of worthless equipment which had been cast out of the boat, but which was cached in order to cover up the books and instruments. I then loaded the sleds with everything on the ground, carrying it away in order not to deceive any person who might make a further search for the second cutter. We traversed the shore for a mile or more but found no signs of the first cutter. The ice had piled up on the beach until it came within a few feet of the cache, endangering its safety. That night we returned to Ballock. I had had three natives with me—Tomat Constantine Mokloploff, Lakinte Shamula, and Kafeem Keerik, a son of the starosta of the village of North Bulun. The natives were wild with excitement at seeing so much treasure in the way of old guns, clothing, pots and pans, and other worthless material left behind by DeLong. After a supper of boiled fish we turned in for the night.

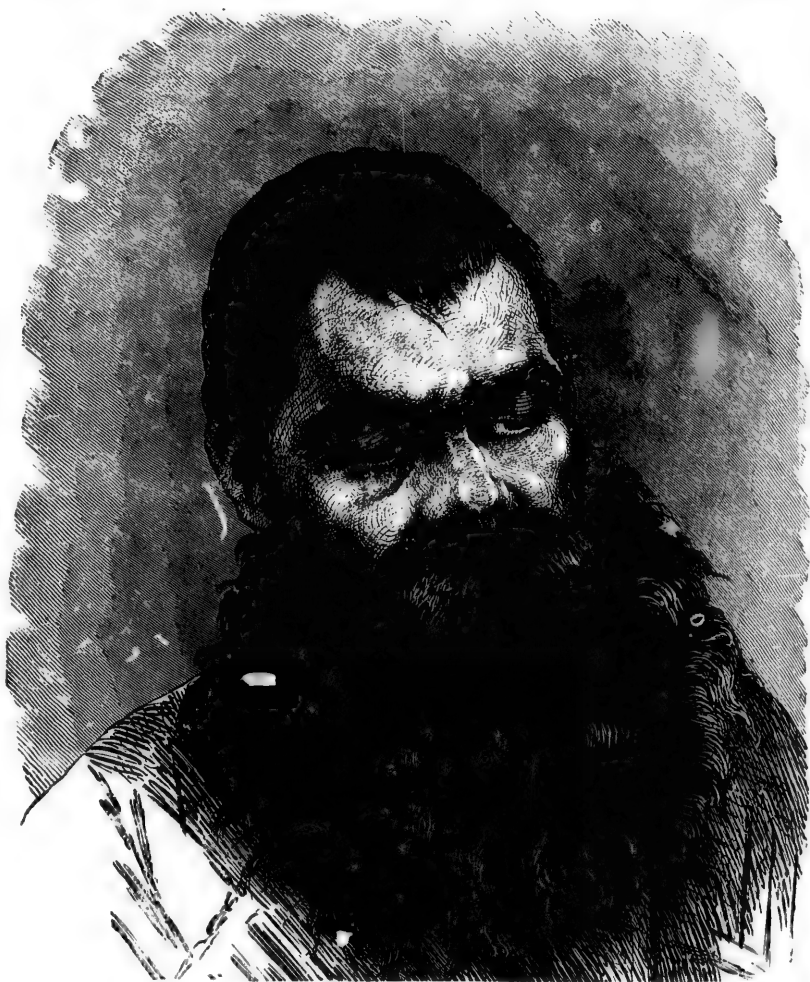
"The next morning," continued the narrator, "I prepared to continue our journey from Ballock to Osucktock, when the natives informed me that we could not go. It was the old story about not having enough provisions. I was on the

door side of the hut, and seizing a stick began to belabor the natives, and a scene similar to that at Mot Vay was enacted. The natives crawled over me and escaped from the hut, but I fired a shot, bringing them to. , Lakinte was very much exasperated at this treatment, appearing to be different from all the other Yakuts I had met, being a superior kind of a man, and not lying, after the manner of the simpler natives. All the Yakuts will lie, either for amusement or to please any stranger who may question them, and if they are found to have committed an offence they will attempt to lie out of it as boldly as though their hearers knew no better. After he had returned Lakinte explained to me that the reason why there were no provisions was that when I went into the hut, at North Bulun, to put on my clothing for the journey, the natives had thrown the fish I had laid out back into the storehouse. This was because there had been a famine in that section, and ninety dogs had died. I was also told that when I had taken the fish nothing remained for the women, and that all would have starved, as there were no men to fish. I, therefore, had to return to North Bulun. We loaded the sleds and started off in a tearing gale, which was fortunately behind us, and arrived there after nightfall.

"I had everything brought into the inner apartment, so that I could keep a supervision over it. Among the other things were several gallons of alcohol in a keg. The natives soon found out that it was there, and had gathered with the intention to have a spree with it. It required the utmost determination to prevent them using it, whether I would or not, and it was only after I had started to pour it into the ash-heap that they desisted from the attempt. They entreated me to give them just a small quantity, but I feared that it might have made them unmanageable, and that it would be impossible to move on. I therefore put the keg behind my berth and we all went to sleep.

"The next morning it was storming furiously. I had sent for the dogs and drivers to carry me and the records to Bulun, going by way of the River Lena, with the intention to keep the west bank. I discarded all the worthless stuff, camp equipage, etc., distributing it among the natives and telling them to destroy whatever they could not use. This was to prevent the misleading of any further search for the Chip party. Lakinte Shamula refused to go with me to Bulun, but

selected two well-known dog-drivers, Fade Akeen and Stare Nicholai. The former had the reputation of having been cast away on the Delta, and of having made the march in nine days, in mid-winter and without food, to Bulun. Fade was a



A COSSACK.

fine, tall, stalwart fellow, much longer than the average Yakut, but with a peculiar, blue, frozen countenance, square jaw and mouth, huge teeth and a turned-up nose. This latter characteristic was so striking, and because of the nearness of his

name to 'Paddy,' I at once fell to calling him by that name.

"Paddy was the best driver, and although it was blowing a westerly gale, and there was much hesitation on the part of Constantine Makloploff and Stare Nicholai in making the start, when I asked Paddy if he would go, he at once put on his hood and mittens and was ready. The protests of the others were now useless. I had three teams, two of eleven each, with all the records, and materials, and the supplies, under the care of Nicholai and seven dogs. After midnight we arrived at Osucktock. The hut was partly filled with snow, but we found evidences of the party having been there in the shape of broken phials and other articles. By this time it seemed as if the weather had set in to blow continually, with a driving snow, which came in all directions, owing to the gorges along the river banks. We had to follow the bed of the river, where the wind swept down as through a funnel. We travelled during the day, and at one o'clock in the afternoon got to Usterda. This was the hut where DeLong encamped for several days waiting for the freezing over of the river, and where he had left a record. It was almost untenable, and but a mile to the south, on the south bank of the Obibutyasa river, I descried another hut known as Mesja, and we went there, it being a better camping-place.

"We returned the next morning to Usterda, in order that I might follow DeLong's tracks on the west bank of the river. I found the tracks of the sled on which they had hauled poor Errickson, and several places where the broken ice indicated that the people had fallen through where the ice was young. The sled had turned to the south, but as the snow had commenced to fill the banks the tracks were covered, the snow at this time filling the banks with a natural slope from their full height to the river's bed. I continued to the south, informing the natives that about twenty versts to the south of where I had crossed I ought to find a 'Malinka stare balagan'—a little old hut, in which Errickson had died. This I had learned from the two seamen. The natives replied that there was such a hut, and after laboring on we came up with a hut answering the description as to distance, but on reaching it we found nothing to indicate that the party had ever been there. I was now off the track, although I had followed the implicit instructions of DeLong's record, which coincided with what

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I had learned from the seamen. I then inquired whether there was not another hut in the neighborhood, and they said there was one twenty versts farther on, but it was on the east bank of the river. Supposing that from the toils and tribulations which they had gone through the seamen might have forgotten, I pushed on for this second hut, arriving towards midnight; but after a thorough search no evidence of DeLong was found.

"I now made up my mind," said Mr. Melville, "that I was off the trail, and I was told that there were no other huts excepting at long distances east and west. The natives assured me that this was the Oshee Lena, and that it was the main branch, and as our provisions had given out after our first stoppage at Mesja it became necessary to push on as rapidly as possible, as I had three hundred versts to go before I could get to a place of safety. The natives said the nearest place was a hut called Sisteransk, and I directed them to push on. The dogs were barely able to move, the natives working in the harness alongside of the dogs, and the snow was so deep it was hard to tell if we were on the river bed or on the banks. Finally the dogs were so exhausted that they laid down in the snow, and could only be made to proceed by beating and dragging them. The storm was so fierce that the dogs and men could not face it, the former, like the men, putting their heads down and receiving the blast upon their shoulders, and if the drivers were not careful the teams would soon be on the back track. Eventually we reached Sisteransk, where we found a lot of fish heads strung on reeds, and hung up for fox-bait. This, with the offal from the ash-heap, and some shreds of reindeer tendon, which we gathered up, we made into soup. The storm in the meantime was howling without, and the dogs being staked fast had gone to sleep in the snow. The finding of this food here was evidence that DeLong's party did not come this way, as it would have been very acceptable to them."

Chief-Engineer Melville's description of his search for DeLong and his party alone would fill a volume. His incidental allusions to the power of the ice and the perils of the polar seas are graphic. We read of crowding and tumbling floes, across which seams run and rattle with the noise of thunder, while blocks of ice fifty feet high are puffed up or tossed across the surface, and of the chaos of millions of tons

heaped against the rocky islands, defying the progress of even the unhampered pedestrian. Mr. Melville blurs the romantic picture of the Esquimaux calmly sitting in shoe-shaped sleds, with the lashes of their long whips trailing gracefully behind, while the dogs dash in full cry and perfect unison across smooth expanses of snow and ice, and substitutes in its place a scene as full of action, if not of progress: dogs yelling, barking, snapping, and fighting, the leaders in the rear and the wheelers in the middle, all as hopelessly tangled up as a basketful of eels. Such tangles the Yakuts dissolve by merciless poundings with heavy iron-tipped staves until the poor brutes become more tractable, and scud along the hard snow at a six-mile gait. After an hour's run the team is released and allowed to roll in the snow and lick the paws that so soon become sore with travel. Curiously enough the Siberian dog returns promptly to harness when called.

Life among the Yakuts must be like a nightmare. Forty per cent. are blind and sixty per cent. partially so, or one-eyed, and syphilitic disease prevails to an awful extent. Melville made his first journeys with little other sustenance than the heads and offal of fish that could be found in abandoned huts, rotten deer bones, tendons, and rawhide. One of his guides set out on a journey of some two hundred miles with a team of tired dogs and no provisions but a tiny piece chipped from a block of tea. Of the capacity of the Yakut stomach we have a graphic if not reproducible account: the Siberian Gargantua swallowing nearly nineteen pounds of melted butter at two long drinks. Little as the natives have they are cheated. The Russian tax-gatherer keeps them in ignorance of the advance in the value of furs during the last generation, and collecting in kind pays a small portion of the proceeds in cash into the treasury, and steals the rest, while gamblers infest the villages systematically, buy whatever the natives have to sell, and cheat them out of the money. Nevertheless these poor wretches supported the shipwrecked crew, and showed no little capacity for fidelity and obedience; there is a picture of a frolicsome young bride's love-making to her bashful husband, which has a touch of the idyl about it, and Melville found near the Pole, as Mungo Park at the Equator, that the woman's heart always has a fount of sympathy for the suffering and the stranger.

Travelling by deer-sled, though rapid work—some of Mr.

Melville's posting was done at almost railroad speed, as 140 versts in thirteen hours, 80 in six and a quarter hours, and 900 versts (the verst is two-thirds of a mile) in five days and eighteen hours—is not always pleasant, either to traveller or animal. The wilds are pathless; occasionally the driver has the excitement of pursuit by a dog-team ravenous for venison; the sleds overturn on the slightest provocation. The deer are kept to their work by being punched in the haunches with a pole. "When driven at the top of their speed they labor painfully along, with heads thrust forward, nostrils distended, sides working at every leap, like a great pair of blacksmith's bellows, and the noise of their breathing like the exhaust of a locomotive. Maintaining their fearful exertions for about half an hour, they suddenly swerve among the trees, or up a steep bank, to avoid their tormentor, or, dropping down in their tracks, bury their heads with open mouths in the snow, and eat voraciously of the cooling dust." The cattle are housed, during the winter months, under the same roof and frequently in the same apartments with their owners; the horses are not stabled, even in the severest weather, but dig through the snow for grass, or crop twigs and branches of trees.

Concerning the Siberian exiles, Mr. Melville tells a good deal. One, whom he met repeatedly, was a law-student who had been arrested for participation in a students' street row. After three examinations the courts could find nothing against him, nevertheless he was packed off to the frozen north for life on an "administrative order," which said: "We can prove nothing against this man; but he is a student of law, and no doubt very dangerous." This exile's companions, whose ages ranged from eighteen to twenty-seven, were all professional men and confirmed Nihilists, "though several said they had not been so until after their banishment." Each was allowed \$12.50 a month with which to feed, clothe, and house himself, and procure fuel and service; this where ryemeal costs nearly eight cents a pound and sugar fifty. Some of the exiles with wealthy friends receive allowances from them, but these must not exceed \$150 at one payment, and mails are very irregular—say twice a year, with packages at odd intervals through travelling merchants. No exile may send or receive a sealed packet. The natives are held accountable, under penalty of imprisonment, for any escapes.



A VIEW IN SIBERIA DURING THE SUMMER.

One of the exiles met by Melville had been a practising physician in the Crimea; he had neither committed a crime nor belonged to a society; he might, however, have offended a rival by his marriage. He had been treating the child of the local police-master, but she was convalescent when, one morning, he was sent for by that official—sent, for with such urgency that he was not allowed to finish his breakfast or take an overcoat. On reaching the official's residence he was told that he was a prisoner on "administrative order," and, without being permitted to bid farewell to his young wife, or to obtain clothing or money, he was packed off to Siberia within twelve hours. His wife followed him to Irkutsk, intending to join him in exile, but he was moved on to Verkeransk, 2,000 miles distant, just before her arrival; she went mad, and died in despair at this ending of her 4,000-mile journey, and he, after an attempt at suicide, settled down in his hopelessness to practise his profession—without fee, since no exile is allowed to gain money for himself. He was not a Nihilist; indeed, was in indifferent repute with his companions because of his moderation in politics. There is some satisfaction in reflecting that the Nihilists utilize their reputation for blood-thirstiness and desperation in order to worry the officials and to make the traders sell them goods at a discount. One exile, a poet and scholar, whose translation of the Bible was appropriated by the bishop of the diocese, attempted an escape by securing a "double"—a Cossack resembling him closely, and trained and educated till the deception could scarcely be discovered, being substituted for him, but his clever plan miscarried, and he was sent into a severer captivity. The only contented exiles are the "Scaups" (skoptzoi), who mutilate themselves so that they can neither beget nor nurse children. They are teetotalers and vegetarians, live in communities under police surveillance, and farm extensively. Like the Shakers, they are prosperous and honest; they die well-to-do, but, somehow, manage to dispose of their property so that it escapes confiscation to the State.

Chief-Engineer Melville describes his meeting with Sergeant Elison at the rescue of Greely's party. Elison had lost both hands and both feet and his nose by frostbite, "yet he seemed cheerful and bright, and thrust out one of his arm-stumps, which I shook in lieu of a hand. He said: 'So you

are one of the officers from the Jeannette, and poor DeLong is dead! You must have had a terrible time!' Here was sympathy, sure enough. A man with nose, feet, and hands frozen off, who for months had been helplessly stretched upon his back, enduring every agony and horror but death itself, could find room in his bleeding heart to pity the past sufferings of others. A noble nature, indeed!"

Melville concludes with "A Method for Reaching the Pole." The ice-barrier he regards as impenetrable to vessels, and he looks to find above 85° an immovable ice-cap, not the chaotic "palæocrystic sea" of Nares and Markham, but a clear, unbroken surface, subject, of course, to fissures and shrinkage cracks. He would attack the pole by way of Franz Josef Land, establishing depots at selected posts, each in charge of a small party provisioned for four years, and instructed to retreat at the end of three, leaving the remainder of their boats and supplies for the "forlorn hope" of some ten men, who will make the "dash for the pole" on foot. "I propose to prove this theory of reaching the North Pole by going there myself!"

"Beautiful river!" say the people of Bucharest of their Dimbovitza; "whoso hath once drunk of thy waters shall always thirst for them wherever he go!" What is the secret of the fatal fascination which Africa and the Arctic region have for those who have once tasted of the cup of adventure and exploration?

CHAPTER XVI.

NARRATIVE OF LIEUTENANT DANENHOWER.

The Jeannette Expedition, as Described by Lieutenant Danenhower—Leaving San Francisco—East Cape Rounded—Herald Island—Wrangell Land—Frozen in—Cold Weather—58 degrees Fahrenheit—Aurora Borealis—Sufficient Game—Ice Bears Killed—Melville's Canal—Jeannette Island and Henrietta Island.

"THE Jeannette left San Francisco on the 8th of July, 1879, with a full outfit for three years, with five commissioned officers of the navy, two civil scientists, and twenty-four of the ship's company. We arrived at Ounalaska on the 3d of August, after a long passage caused by head winds and the vessel being laden below her proper bearings. The Jeannette was perfectly seaworthy, having been thoroughly put in order at Mare Island before starting. After coaling ship at Ounalaska we proceeded to St. Michael's, Alaska, to meet our supply schooner, the Fanny A. Hyde. There we filled up with stores, got fur clothing, purchased forty dogs and engaged two American Indians—Anequin and Alexei—as hunters and dog-drivers, thus completing our complement of thirty-three. On the 25th of August we crossed Behring's Sea, in a very heavy gale, and though the ship was loaded very deeply she behaved admirably.

"We visited St. Lawrence Bay in order to take in coal and the remaining supplies from the schooner, as well as to converse with the native Chukches and to get news of Nordenskjöld. We met about twenty natives, one of whom had learned a little English from American traders, and he told us that a steamer had passed south the previous June. The natives were ragged and dirty, and had no food to dispose of. We shot some wild fowl, and then we saw remains of vessels burned by the Shenandoah. Up the St. Lawrence Bay we found magnificent scenery. We sent off our last mail by the supply schooner, and on the 27th of August, 7 P. M., we started north. Next day we passed through Behring's Strait. We rounded East Cape about three of the afternoon of the

28th; it was then cloudy, no observations, running by dead reckoning. The East Cape loomed very bold and bluff. We could not see the Diomedes in the straits.

"On the 29th I saw, from the crow's-nest, huts on the beach. We stood in and found a summer settlement. Captain DeLong and a party of officers started ashore in the whaleboat, but could not land owing to the surf breaking on iceward. Seeing the difficulty, the natives launched a *bida-rah*, or large skin-boat, very skilfully, and came off to the ship, bringing their chief with them. We had a long interview with them in the cabin, but as neither party could understand the other the results of the conversation were not great. They made us understand, however, by bending the elbow and saying 'Schnapps' what they wanted, but the captain refused to listen to their request. Lieutenant Chipp then went ashore and succeeded in landing about midnight, and from an old woman from King's Island who could talk with our Indians, we learned that Nordenskjöld with the Vega had wintered to the north of them, and had passed east to Behring's Strait in the month of June. The next day we cruised along the coast to the westward. Met two other parties of natives, who came alongside, but took a look at us only.

"On Sunday, August 31st, we fell in with some drift-ice, and at daylight discovered a few huts on the beach. The drift-ice extended about four miles off shore. Lieutenant Chipp, Ice-Pilot Dunbar and I, went ashore in the whaleboat to interview the natives. After a two hours' pull through the drift-pack, and seeing many seals, we reached the beach and found several carcasses of recently slain walrus. The natives seemed rather shy, and we had to look them up in their skin tents. There we found a sailor's trypot, and a cask marked 'Centennial brand of whiskey,'—conclusive proof that the people were in occasional communication with American traders.

"We met an intelligent young Chukche, who offered to show us the spot where the Vega had wintered. We took a tramp of several hours to the westward, and saw a bay about fifteen miles wide between the headlands, and there the natives told us the Vega had passed the winter. We found nothing there of any consequence. In the tents, however, we found tin cans marked 'Stockholm,' scraps of paper with soundings marked in Swedish, and some interesting pictures of Stock-

holm professional beauties. The natives indicated to us by signs that the steamer had passed safely out to the east. After purchasing some of the pictures and tin cans we returned to the ship.

"During my absence the captain had got the sun at noon, and the latitude placed us about fifteen miles inland. Our astronomical positions were not reliable, owing to the state of the weather, but from them and the dead reckoning we felt assured that the coast is not correctly charted. The general appearance of the coast was fresh and pleasing. Off what we supposed to be Cape Serdze Kamen we saw a large heart-shaped rock, of which Mr. Collins made an elaborate sketch. There were several sugar-loaf mountains in sight.

"Our walk to the Vega's winter quarters was over a mossy tundra; no signs of deer; the vegetation withered. The natives were hospitable, and one old Chukche dame pressed us to eat a dish of walrus blood, but we felt compelled to refuse the offer. The natives were stalwart and handsome; they lived in skin tents and were exceedingly dirty. They were well clad, and the chief wore a red calico gown as the distinguishing mark of his dignity. This was the last time most of us touched land for a period of more than two years.

"About 4 P. M., August 31st, we stood to the northwest, shaping our course to the southeast cape of Wrangell Land, and then we felt that our Arctic cruise had actually commenced. We met considerable drift-ice; the weather was stormy and misty. About sunrise, September 1st, we discerned an island which was taken to be Kolyutschin, in Kolyutschin Bay. Next day we met pack-ice in floes of moderate size, turned to the northward and northeastward, and cruised along the Siberian pack, entering leads at times to examine them.

"On the afternoon of September 4th a whaling bark bore down to us; we stopped engines and awaited her approach, but the weather became misty and she did not speak us. We had an Arctic mail on board at the time, and were disappointed at not being able to send letters home. We ran in several times and made fast to floe-pieces, to await clear weather. That afternoon, about four, we saw an immense tree, with its roots, drifting by. Ice-Pilot Dunbar, seeing it, said that in 1865, when the Shenandoah destroyed the

whalers, he was at St. Lawrence Bay; and when, a few months later, he landed on Herald Island, he was greatly surprised to see masts and portions of the destroyed vessels drifting in that vicinity. This made me look out for a north-west drift. Then Herald Island loomed up in the clouds.

"On the 6th of September the captain judged that we had reached the lead between the Siberian and North American packs, and that this was a good place to enter. He took charge from the crow's-nest, and we entered the pack. We met with the young ice, and forced our way through it by ramming. This shook the ship very badly, but did not do her any damage; indeed, the ship stood the concussions handsomely. But at 4 p. m. we could proceed no farther. We banked fires, secured the vessel with ice-anchors, and remained. That night was exceedingly cold. The ship was frozen in. At this time the ice was in pieces ranging from ten square yards to several acres in area, with small water-courses like veins running between them, but now quite frozen over. It remained quiet for a number of days, and we found ourselves in the middle of a large accumulation of floes about four miles across. We were then in about twenty fathoms of water, and had Herald Island in sight to the southward and westward, twenty-one miles distant by triangulation on a base line of 1,100 yards.

"About the 15th of September First Lieutenant Chipp, Ice-Pilot Dunbar, Engineer Melville, and the Indian, Alexei, started with a dog-sledge for Herald Island. They got within six miles of the beach, when they found open water before them, and were compelled to return. We found the ship drifting with the ice, and with so uncertain a base the captain would not send other persons to the island with boats. The general appearance of the ice at this time was uniform, with here and there almost snowless hummocks appearing above the surface, between which were pools whereon the men could skate. The deflorescence of salt was like velvet under the feet. From day to day we saw a looming of land to the southwest, and sometimes in the clouds. We soon found that the ice always took up the drift with the wind.

"The ship at this time began to heel to starboard under the pressure, and inclined about twelve degrees. We unshipped the rudder, got up mast-head tackles on the port side, with

lower blocks hooked to heavy ice-anchors about a hundred and fifty feet distant, and set them taut in order to keep the ship upright. The propeller was not triced up, but was turned so that the blades would be up and down the stern-post; the engines were tallowed, but not taken apart. When the ship commenced to heel, the local deviation of the compass increased in the ratio of one and a half degrees duration to one degree of list. This was owing to the vast amount of iron-work, and especially the canned goods, which had to be stowed in the after-hold and on the quarter-deck. All our compass observations had of course to be made on the ice well clear of the ship. At this time and later on we noticed that the turning motion of the floe or change in azimuth of the ship's head was very slow; but the floe did have a cycloidal motion with the wind, and the resultant was in the northwest direction.

"Our position was not an enviable one. At any moment the vessel was liable to be crushed like an egg-shell among this enormous mass of ice, the general thickness of which was from five to six feet, though some was over twenty where the floe-pieces had overrun and cemented together and turned topsy-turvy. Pressures were constantly felt. We heard distant thundering of the heavy masses, which threw up high ridges of young ice that looked like immense pieces of crushed sugar.

"The month of October was quiet. We had had no equinoctial gales even in September. The cold was very bitter. Wrangell Land was in plain sight to south and west many times, and especially on the 28th and 29th of October, when we could see mountains and glaciers, which we identified on many occasions. Collins took sketches of them. The ship was drifting to and fro with the wind. Up to this time we saw a considerable number of seals and walrus, and got two bears. Two white whales were also seen, which were the only ones noticed during the whole cruise. Life on board was quiet but monotonous. We got many observations, especially from the stars. The nights were very clear, and suitable for artificial horizon work.

"We began to find at this time, and by later experience became convinced, that Rear-Admiral John Rodgers was right when he said that the sextant, artificial horizon, and the lead were the most efficient and useful instruments in exploring

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Arctic waters, and that transits and zenith telescopes were not useful, because refined observations could not be obtained, and were not necessary in this region. The cold is so great as to affect the instrument, and it is almost impossible to keep the lens free of frost and vapor, thus making the refraction a very indefinite correction. Our experience in this pack was, that the state of the atmosphere was constantly changing; without a moment's notice the ice would sometimes open near the ship, and vast columns of vapor would rise whenever the difference of temperature between the air and water was great. The surface water was generally 29° Fahrenheit, the freezing point of salt water.

"About the 6th of November the ice began to break up. We had previously observed considerable agitation about the full and change of the moon, and attributed it to tidal action. This was observed particularly when we were between Herald Island and Wrangell Land, and when the water was shoaled—that is, about fifteen fathoms—the ice began to break round the ship, and a regular stream of broken masses gradually encroached upon us. From aloft the floe that had appeared so uniform a few weeks before was now tumbled about, and in a state of greater confusion than an old Turkish graveyard. Tracks began to radiate from the ship, and the noise and vibration of distant ramming were terrific, making even the dogs whine.

"November 3d was a calm, starlight night. I got good star observations, with Melville marking time, at eleven P. M. I was working them up, when a crack was heard, and we found that the floe had split, and that the ice on the port side had drifted off, leaving the ship lying in a half cradle on her starboard bilge. The water looked smooth and beautiful, and there was no noise save that of four dogs which had drifted off with the port ice. We had previously taken in the observatory, and had prepared for such an accident, but on the starboard side the steam-cutter and the men's outhouse had been left. We got the steam-cutter aboard, but left the outhouse standing.

"And here let me mention an interesting fact. About sixteen months afterward, the Indian Anequin came in, in a state of great excitement for an Indian generally so stolid, and reported, 'Me found two-man house!' He described it as a house large enough for two men, and when asked if

he had been inside said, 'No, me plenty 'fraid!' Judge of our surprise. Lieutenant Chipp immediately started with the Indian and others, and found the house at a distance of about three miles to the southeast. It proved to be the lost outhouse, thus showing that the relative positions of the pieces in the vicinity were comparative unchanged.

"The next morning the half cradle on which the port side had rested could be seen about a thousand yards distant, and this immense lead was open, but of very limited length. The appearance of the ice can be likened to an immense cake as it comes from the oven, broken and cracked on the surface.

"A few mornings later the drift ice came down upon us under the starboard bow, and wedged the ship off her cradle, and she went adrift in the gale. This was about eight A. M. She drifted all day until seven P. M., when she brought up on some young ice, and was frozen in solid again. It was dark, in the long night, and there was no chance of working the pack had it been good judgment to do so. We reckoned that she had drifted at least forty miles, with the ice in her immediate vicinity.

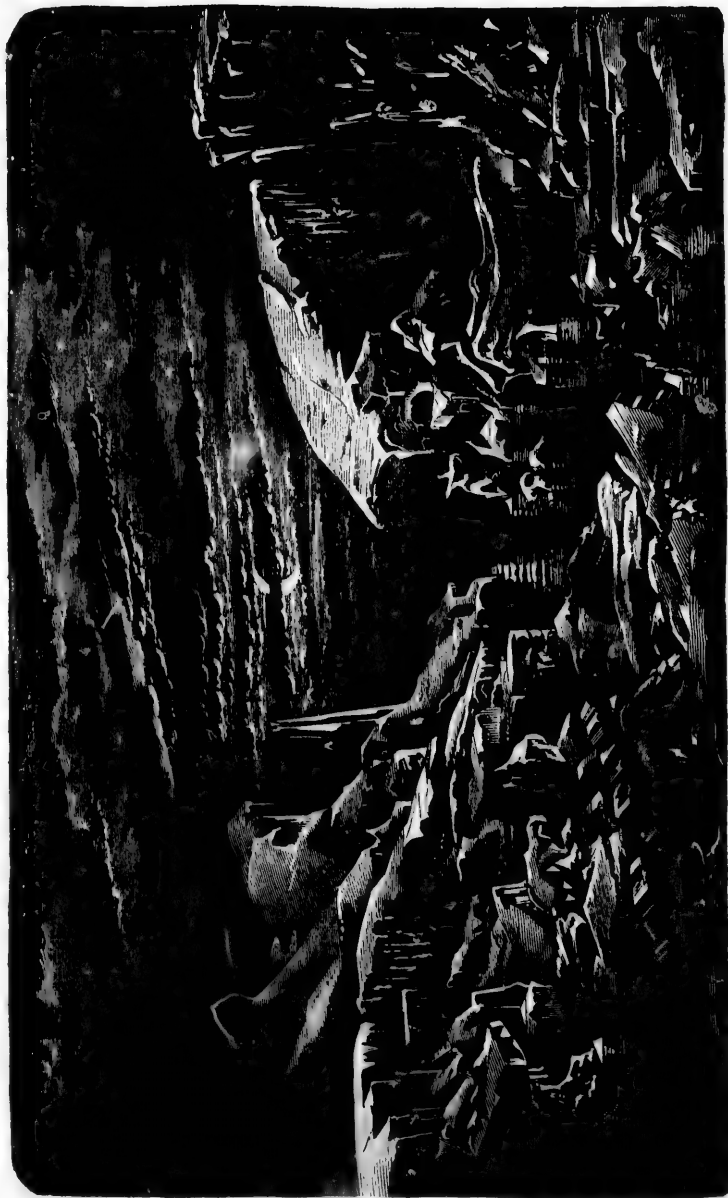
"Previous to this time the ship had stood the pressure in the most remarkable manner. On one occasion I stood on the deck-house above a sharp tongue of ice that pressed the port side just abaft the fore chains and in the wake of the immense truss that had been strengthened by the urgent advice of Engineer-in-chief William H. Shock, on Mare Island. The fate of the Jeannette was then delicately balanced, and when I saw the immense tongue break and harmlessly under-run the ship, I gave heartfelt thanks to Shock's good judgment. She would groan from stem to stern; the cabin doors were often jammed so that we could not get out in case of emergency, and the heavy truss was embedded three-quarters of an inch into the ceiling. The safety of the ship at that time was due entirely to the truss. The deck planking would start from the beams, showing the unpainted wood for more than half an inch. This, together with the sharp cracking of the ship's fastenings, like the report of a distant charge of rifles, would wake us at night. Each man kept his knapsack by him ready for an instant move, and preparations were made for leaving the ship with sleds and boats if necessary.

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SUMMER SCENE IN THE ARCTIC SEAS—ICE HONEYCOMBED BY THE SUN.

"Several gales, the heaviest being about fifty miles an hour, occurred in the fall of 1879. The long night commenced about the 10th of November, and lasted till the 25th of January, 1880. On November 1st the winter routine commenced. At seven, call all hands and start fires in the galleys; at nine, breakfast; from eleven to one, guns given to all hands to hunt and for exercise on the ice; at three P. M., dinner; then galley fires put out to save coal; between seven and eight, tea, made from the Baxter boiler, which was used constantly to condense water, we having found that the floe ice was too salt for use, and the doctor insisted on using condensed water. This boiler was originally intended for the electric light, but it was found that we could not afford to run the light, so we used the coal in condensing water. Twenty-five pounds of coal per day was allowed for heating the cabin, twenty-five pounds for the fore-castle, and ninety pounds for ship's galley for cooking purposes.

"We lived on canned goods, with bear and seal twice a week, pork-and-beans and salt beef once a week; no rum or spirits, except on festive occasions, two or three times a year. The discipline of the ship was excellent, and during the whole twenty-one months in the pack there was but one punishment given, and that was for profanity. The crew were well quartered in berths, and were comparatively happy; had navigation class and theatricals. The health of all was excellent, and there was a special medical examination the first of every month.

"Things went on in this fashion until the middle of January, when there were tremendous pressures, and the floes actually backed up into mounds under the strain, the ice being very tough and elastic. The heaviest strain came in the stem of the ship, in a longitudinal direction. There was also a heavy lateral strain, especially under the starboard main chains. About nine o'clock one morning a man went down into the fire-room on duty and found the floor-plates covered with water; he immediately reported the fact, and all pumps were started. The temperature was below 42 degrees Fahrenheit (the freezing point of mercury). Mr. Melville had great difficulty in getting up steam and starting the donkey pumps, but succeeded admirably, the men working with their feet and legs in ice-water, and everything frozen and freezing solid. It was found that the vessel leaked

badly in the bows, and we supposed that the hooding of the planks had been started at the stem, and it was not until the last day, June 12th, 1881, that we discovered that the forefoot had been twisted to starboard.

"The carpenter (Sweetman), with Nindemann, worked day and night, and (under the direction of Lieutenant Chipp) built a bulkhead forward of the foremast, which partially confined the water. Melville rigged an economical pump with the Baxter boiler, and the ship was pumped for nearly eighteen months. A windmill pump was also made for summer, but the winds were so light that it hardly paid. During the last few months the leak decreased, owing to the ship floating higher, and we had then only to pump once every half hour by hand. The experience of January 19th gave me great confidence in the ship's company, as it was a very severe test on the men. I was confined to my berth at the time, but knew everything that was going on, and the solid and effective work done was very gratifying.

"As well as I can remember, about fifteen barrels of flour and some other dry provisions were damaged by this accident. Previous to this we had to throw away a large quantity of canned roast-beef marked 'Erie brand,' it having proved bad. The coldest weather occurred in February, 1880, being -58° . There were also some great and remarkable changes of temperature in the course of the day.

"About the middle of February we were found to be about fifty miles from the place where we had entered, and Herald Island was said to have been in sight during one day. During these five months we had drifted over an immense area, approaching and receding from the 180th meridian, but I do not think we crossed it at that time. We continued to drift in this uncertain manner. We noticed that the ship always took up a rapid drift with southeast winds, and a slow drift with northeast winds, owing, doubtless, to Wrangell Island being under our lee. Southwest winds were not frequent.

"At times land was reported to the northeast, but nothing trustworthy. Some observers were constantly seeing land at all points of the compass, and many was the trip that the navigator and the ice-pilot had to make to the crow's-nest in vain. We were very much disappointed in not being able to shift for ourselves, and up to this time we had only demonstrated to our satisfaction that Dr. Peterman's theory in re-

gard to Wrangell Land being a portion of Greenland was no longer tenable, for its insularity was evident, as subsequently proved.

"March and April, 1880, were passed quietly, and we were surprised at not having any March gales. The geese and wild fowl that some of us expected to see on their spring migration, did not put in an appearance. One poor eider duck fell exhausted near the ship, and one of our sportsmen shot at it, and after administering chloroform it succumbed. There were some birds seen later in the season, moving to the westward, but they were not numerous. A great many mussel-shells and quantities of mud were often found on the ice, which indicated that it had been in contact with land or shoals. Our hunters ranged far and wide, and often brought in small pieces of wood—on one occasion a codfish head, and on another some stuff that was very much like whale-blubber, all of which had been found on the ice.

"On May 3d, fresh southeast winds began, and the ship took up a rapid and uniform drift to the northwest. Now Mr. Collins began to predict, and told me several times that these winds would continue till the early part or the middle of June, and would be followed by constant northwest winds for the balance of June. This prediction was fully realized, and in the month of June we actually drifted back over the May track. During July and August there was scarcely any wind, and the weather was misty and raw, it being the most unpleasant time of the year, the coldest weather not excepted. The damp and fog and cold struck chill to the bones, and we could not afford to heat the ship as we did in winter. The ice seemed to absorb all the heat from the sun during the melting period of the year.

"The snow disappeared from the surface of the floe about the middle of June, and the best travelling period over the floe was considered to be between the middle of June and the middle of July. But this was a subject for constant discussion among the savans, among whom Mr. Dunbar was the most experienced, he having been an old traveller in the Baffin's Bay region. A considerable number of birds, principally phalaropes and guillemots, were shot, and very much appreciated at dinner.

"The surface of the floe-pieces was now of a hard, greenish blue, and flinty, being covered in many places with thaw-

water. There were numerous cracks near the ship, but no leads that went in any definite direction, and there was no chance to move, for the ship was embedded in the ice so firmly that a whole cargo of explosives would have been useless. Lieutenant Chipp, an experienced torpedo operator, made torpedoes and all the arrangements for taking advantage of the first opportunity to free the ship. But the opportunity never came.

"Mr. Chipp was an accomplished electrician, and during the whole time in the ice he took up the subject recommended by the Smithsonian Institution to the Polaris expedition—namely, observations of the disturbances of the galvanometer during auroras. He had wires laid out over the ice, and earth-plates in the water, and the galvanometer in the current, and obtained over 2,000 observations during auroras, which he intended to turn over to a specialist for purposes of analysis and judgment. He always found disturbances of the needle coincident with the most brilliant auroras. He also ran the telephones, which, however, gave a great deal of trouble, owing to the wires being broken by the wind and the ice movements. Those on the ship, of course, were all right. During my sickness he also made observations of the eclipses of Jupiter's satellites, and got some excellent results for chronometer errors by using an improved ship's telescope mounted on a barrel. He afterward used the transit telescope similarly mounted. This was the best data for our chronometers, being far superior to lunar observations.

"The summer weather was very bright and pleasant for about fifteen days in July, and when the thermometer was above 40° Fahrenheit we called it a warm day; but the latter parts of July and August were particularly bad, being foggy and raw.

"During the first year we got sufficient game for table use, and seal-skins for clothing for the men, but this necessitated a great deal of hunting, and there was a great scarcity of game in this region. The seal most frequently obtained was the species called by Lamont the 'floe rat,' and averages about sixty pounds in weight, and thirty to forty pounds when dressed. The men generally made up the skins into boots and trousers. The meat was not pleasant to the taste, and it required the strongest philosophy to enable one to eat it at all. Walrus was scarce, the depth of water being a little too

great for them, as they seldom inhabit depths of more than fifteen fathoms. We got six, however, which furnished excellent food for the dogs, and our Chinese cook was an adept in making walrus sausage for our *cuisine*.

"Bear chases were frequent and exciting, and about fifteen animals were obtained the first year. Mr. Dunbar was the champion bear-slayer, and was always ready for a keen jump when game was reported. During the first winter a tremendous bear approached the ship about midnight, drove the dogs in, and attempted to board us over the port gang-plank. The alarm was given. Mr. Dunbar was on deck instantly, with rifle in hand, and shot the bear through the heart at ten paces. It was probably the biggest and most ferocious bear secured on the cruise, and he had been attracted by the quarters of his comrade that were triced up in the fore-rigging. A few foxes were seen, and their tracks quite frequently observed. They seemed to either accompany or follow the bears, like pilot-fish with the sharks, and jackals with their ferocious and stronger friends.

"During the summer some of us used to take the skin-boats, or the dingy, and paddle among the cracks. On one occasion Captain DeLong was alone in the dingy, and was interviewed by a bear, who suddenly approached out of the mist and stood watching him in the most dignified manner. The captain retreated in good order. During the summer it was very difficult to get bears, because they could take to the water so readily, and thus cut off their pursuers. During the misty times they were very bold, and on one occasion a she-bear with two cubs approached the ship to within 400 yards of the starboard quarter. Fortunately, the dogs were on the port side and to windward, so they did not scent the bear. The greatest quietness prevailed, and a squad of about ten riflemen was immediately organized on the poop. I was watching the bears through a cabin air-port, and it was a very fine sight to see the mother and her two cubs approach the ship in a wondering and cautious manner. I could see better under the mist than the people on the poop. I heard the captain say:

"'Do any of you think it is over 250 yards?'

"All seemed to agree, and he said:

"'Aim at 250 yards, and wait for the word "Fire."'

"Then succeeded a volley. The bears reeled and made sev-

eral turns, and I thought we had bagged all of them, but was astonished to see them get up and walk off in the most lively manner. Of course all the dogs took the alarm and pursued them to the first crack, which the bears calmly swam across, and thus escaped. But large drops of blood were seen, and the she-bear lay down once or twice as if wounded. In making her retreat she drove her cubs before her, and became impatient when they moved slowly. The bears had been hit, but the distance had been underestimated, and most of the shots had fallen short. This was not extraordinary because it was very misty.

"After this one year of experience in the ice we concluded that the general motion of the ice was due principally to the wind, and that the resultant of the winds was from the southeast. Some of us talked about the polar region being covered with an immense 'ice-cap,' which seemed to have a slow, general movement in the direction of the hands of a watch, the direction of the drift, of course, being different in the different segments. The influence of Wrangell Island would be to impede the drift of the segment lying to the northward and eastward, and I imagined that there must be a constant strife between Wrangell Land and the solid phalanx of ice from the northeast. This polar ice-cap we know throws off in its revolutions millions of acres every year through the gates of Robeson Channel and between Iceland and Greenland. A branch of the Gulf Stream attacks it from the Spitzbergen side, and its influence is felt as far as the North Cape of Asia. The general motion of this 'cap' must be very slow, but the local motions of course depend upon the depth of the ocean and the vicinity of land, and near nature's outlets it is very rapid.

"Melville gave me lots of food for reflection. He analyzed all data obtainable from the Hydrographic Office reports and Arctic literature, and marked on the circumpolar chart with arrows the currents as reported by various navigators, as well as those mentioned in the theories of distinguished geographers. We constantly discussed the question, and both felt assured that if the ship could remain intact long enough, she would eventually drift out between Spitzbergen and Bear Island to Atlantic waters. A very high latitude would doubtless be attained, and would depend in a great measure on the influence of Franz Joseph Land upon the motion of the pack.

If the ship passed to the southeast of it, the local motion to the southwest might be very rapid by the pack impinging on those lands; and if passing to the northward, the pack would be deflected toward the Pole and a very high latitude would be obtained, supposing no polar continental land to exist. It is my opinion that had we entered the pack 200 miles to the eastward of where we did, we could have worked up near Prince Patrick Land; for Collinson found the deepest water over there to the eastward, and sounded with 133 fathoms without finding bottom.

"Our smallest depth the first year's drift was seventeen fathoms, and the greatest depth not over sixty, the average being generally thirty, and the ocean bottom usually uniform, with blue mud and in some cases shale—something like round pieces of potato, cut thin and fried, and supposed to be meteoric specimens. We felt pretty sure that we would continue to drift to the northwest during the following year, but I was not sure what influence the peculiar coast-line in the vicinity of the North Cape would exert, it being in the form of an elbow, and must therefore have great influence on the general motion of the pack.

"From the fact that the spars of the Shenandoah's devastations drifted to Herald Island, and that the whaling bark Gratitude had been last seen drifting to the northwest in that vicinity, we augured that there must also be some northwest current; but we have no other evidence of a current except the formation of banks and shoals in the vicinity of Herald Island, which may be similar to the formation of the Grand Banks, by the ice bringing earthy matter there. The locality east-northeast of Wrangell Land may be regarded as the Arctic doldrums, as far as drift is concerned. We also considered the possibility of drifting down the western side of Wrangell Land, and then again, perhaps, once more being able to shift for ourselves.

"The general health of the ship's company was excellent, and we looked forward coolly, but not without some anxiety, to the long night of the second winter, during which time we might at any instant be rendered homeless and at the mercy of the Arctic fiends.

"At the beginning of September, 1880, the Jeannette was firmly embedded in ice of about eight feet in thickness; but there were immense masses shoved under her keel, and the

bows were lifted so that the keel was inclined about one degree, the ship at the same time heeling to starboard two degrees, and so firmly held in this gigantic vice that when the blacksmith struck his anvil in the fire-room, one could see the shrouds and stays vibrate, and they were not very taut. Our executive officer had slackened up the rigging during the first winter, and the contraction of wire rigging by the intense cold was of course very great. The ice was piled up under the main chains and as high as the plank-sheer. In the vicinity of the ship the ice was tumbled about in the greatest confusion, and travelling over it was almost an impossibility.

"In the latter part of September, when the cracks froze over, came the best time for travel, but the outlook was poor. There was comparatively little snow, and what there was was constantly blown by the wind, and rendered salt by attrition on the surface of the ice, so that we could not use it for culinary purposes. The captain was very favorable to fall travelling, and he several times expressed himself to the effect that he would not abandon the ship while there was a pound of provisions left, and we generally understood that he would hold on a year longer, and probably start when the fall travelling commenced, a year later. We all considered that if our provisions held out long enough, if we were not attacked by scurvy, and if the ship was not crushed by the ice, we should eventually drift out after reaching the vicinity of Franz Joseph Land, either north or south of it. The morale of the ship's company was excellent, yet we looked anxiously toward the long night of the second winter, which proved to be the most fearful part of our experience. The anxiety and mental strain on many of us were the greatest at that time. We were so completely at the mercy of the ice that the vessel might be crushed at any moment by the thundering agencies which we constantly heard.

"In the month of September the ship was put in winter quarters for the second time. She was banked up with snow, the deck-house was put up for the use of the men, and the awning spread so that the spar-deck was completely housed over. Economy and retrenchment were the order of the day in fuel, provisions, and clothing. The old winter routine of meals, two hours' exercise, and so on, commenced on November 1st, and all was going well.

"November and December were extremely cold, but we had no severe gales that I remember. The meteorological observations were taken every hour during the first year, but every two hours only during the second. They were very thorough, and Mr. Collins was very watchful to add something to the science to which he was so thoroughly devoted. During my sickness the captain and Mr. Chipp took the astronomical observations, but each officer in the ship had a round of duty as weather observer and to assist Mr. Collins. There was a quartermaster on watch all the time, and steam was kept on the Baxter boiler for distilling purposes. To save coal, fires were put out in the galley at 3 P. M., being used only from 7 A. M. till that hour.

"The month of January, 1881, was remarkable for its changeable temperature, and as being warmer than the two previous months. About the middle of the month the wind set in from the southeast, and subsequently to that time the drift of the ship was uniformly to the northwest. The depth of the water began to increase toward the northwest, but would always decrease toward the southeast or southwest, as well as to the northeast. The vessel seemed to drift in a groove, which we called Melville's Canal, as he was the first to call attention to the fact. Mr. Chipp took the soundings every morning, and by long experience we could judge of the drift so accurately that his dead reckoning generally tallied with the observations. He adopted a scale by which 'slow' drift meant three nautical miles per day; 'moderate,' six miles; 'rapid,' nine miles; 'very rapid,' twelve miles. He always reckoned the direction and speed of the drift and placed the ship before making the observation. His judgment was excellent. He and the captain made frequent lunar observations for chronometer errors, but those of the eclipses of Jupiter's satellites were the best.

"February was the coldest month; and the mean for the three months was only six degrees lower than that for the same months during the previous year. The soundings generally ran thirty-three, but one morning Mr. Dunbar sounded in forty-four; some called that place Dunbar Hole. We drifted over this spot once again at a later period. The absence of animal life prior to May was greater than during the previous year. All hands hunted every day, especially as the doctor wanted fresh meat for the Indian Alexei, who was said



A BATTLE WITH WALRUS.

to have the scurvy, and suffered very greatly from abscesses on his leg. On May 1st, Dr. Ambler reported the physical condition of the crew rapidly deteriorating, and six or seven were placed on whiskey and quinine to tone them up. The weather at this time was good, and there were no spring gales. Of course when I say good, it is in an Arctic sense.

"During the month of May, old man Dunbar was always in the crow's-nest, and got blind several times. The old gentleman was looking out sharp for land, and about the 16th of May he was the first to announce it in sight. You can imagine the excitement it caused, for we had not seen land for many months and had not set foot on it for nearly two years.

"Jeannette Island, as the new land was called, was not landed on, but the astronomical position of it could be, and doubtless was, well established from the data obtained by Captain DeLong. It was by triangulation, on the base established by observations on different days, the ship having drifted rapidly and giving a long base line, the extremities of which were established by artificial horizon and sextant observations. I was confined to my room at the time of the discovery, but every item of it was brought to me by Dunbar, Melville, and Chipp, and everything was so minutely described to me that I could almost see the land through the ship's side.

"I understood Jeannette Island to be small and rocky. The southern end appeared high, and the land sloped down to a low point to the northward when the island was first seen, but subsequently mountains behind the low point were observed, and from this fact the island was adjudged to be more extensive than at first supposed. Sketches were made whenever the island was in sight, but it would have been foolish to have attempted a journey to it, for the drift of the ship was too rapid and the state of the ice so changeable.

"A few days afterwards, Henrietta Island hove in sight, and appeared extensive. The drift of the ship seemed arrested by the northeast extremity of the island. Lieutenant Chipp was sick abed with what afterwards proved to be tin poisoning, and I was confined to my room with my eyes. So Mr. Melville had the good fortune to be the first to visit Henrietta Island, and he did his work admirably. When he left the

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ship the captain judged the island to be from twelve to fifteen miles distant, it appeared so plain, but he had not yet triangulated for it owing to the state of the weather.

"The journey from the ship to Henrietta Island was one of the hardest on record. Melville had to travel over immense masses of broken ice that were constantly in motion, and in most cases the dogs were worse than useless. He landed in a state of exhaustion, took a short run on the island, and then ordered the men to turn in. He intended to sleep until ten o'clock the next morning, but was probably anxious, and when he turned out his watch said seven o'clock, but it was probably p. m. In his anxiety he had slept only an hour and a half or two hours. The men said that they felt as if they were just going to sleep. Feeling confident, however, that they had passed the twelve hours in their sleeping-bags, he finished the examination of the island and started back to the ship, and was surprised on his return that he had gained twelve hours in time. This was not surprising, from the fact that during his visit to the island he did not see the sun but once, at which time Erickson said: 'The sun is west, sir, and it is morning with us.' So Mr. Melville, on his return, had a suspicion that his time was 'out.'

"During this trip Mr. Dunbar broke down with snow-blindness, and had to be carried back by the party to the ship. On the way to the island he went ahead to select the road, and worked so hard and used his eyes so much that he became thoroughly disabled. The old gentleman felt very badly, it being the first time in his long career that he had ever been physically unequal to the occasion. He begged Melville to leave him, his mortification was so great. But of course this was not done. The others bore the trip remarkably well. They had been picked out as the flower of the ship's company.

"There was a mountain on the island that the men named after the captain's little daughter—'Mount Sylvie;' also another mountain, which was called 'Mount Chipp;' two very bold headlands were called 'Bennett Headlands;' one bald cape was called 'Cape Melville,' in honor of one of the chief engineer's characteristics. There was a low, shingle-beach cape extending to the northeast, that was called 'Point Dunbar.' All these names were given by the sailors who rambled

over the island, and we have always called them by the names thus originally given them. At one time the land appeared so near to us that Machinist Lee said to me: 'Why, I can walk there and back, sir, before dinner.' On that day I was able to get on deck, and judged the land to be between twenty and thirty miles distant, and so I advised my friend not to try it.

"Melville told me that he could not tell the distance he travelled to within ten miles, but that the lowest possible estimate was eighteen, and the highest twenty-eight miles. You see, his journey back was on a different route, because the ship had drifted and had approached the island in the meantime. He gave me every detail of his trip with great minuteness. The island was bold and rocky, with a small number of birds, principally guillemots, and very little deer-moss on the place where he landed. But, of course, we do not know the possibilities of the extensive region to the southwest of the landing-point.

"The island was covered with an ice and snow cap, and the immense glacier near the landing-place was gigantic and magnificent. I think Melville got eighteen fathoms close to the island. No seal or walrus were seen, and no traces of bears on the island. No driftwood was seen. Melville built a cairn, and buried a square, copper case containing copies of the *New York Herald*, brought from New York by Mr. Collins, and a copper cylinder containing official documents—the latter being a record of Captain DeLong's determination to stay by the ship to the last moment. He announced in them his determination to stand by the ship as long as possible, as he was in hopes of making a high latitude during the following summer. We were all very glad when Melville got back, for the ice had commenced to swing around the corner of Henrietta Island very rapidly, the land to the westward of Bennett Headlands coming out rapidly, and keeping Collins and Newcomb busily sketching as the view changed."

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CHAPTER XVII.

LIEUTENANT DANENHOWER'S NARRATIVE CONTINUED.

*The Ship Drifting to the Northwest—The Final Moments in the Life of the Jeannette—
Abandoning the Jeannette—The Ship Fills with Water and Sinks—Encamped on the Ice
—Preparing for the Travel Southward—Bennett Island.*

"THE ship continued drifting to the northwest rapidly until June 10th. During this time the ice in which she was embedded began to crack, and the area of the piece was decreasing rapidly. We knew that the important moment was coming when the Jeannette would be liberated from this cyclopean vice, and that her future would be more hazardous than while in the monster's grip; for it was impossible to shape a course, and she would be momentarily liable to be crushed by the impact of the antagonistic floe-pieces, which sent immense masses of ice into the air, and among which the Jeannette would be like a glass toy-ship in a railroad collision.

"About eleven P. M., June 10th, I was awakened by the ship's motion. It sounded as if she were sliding down hill, or off the launching-ways. I was frightened for an instant, but immediately recovered and jumped out of bed for my clothes. The ship had slid off her bed after the ice on the port side had opened with a loud crack. There she floated calmly on the surface of the beautiful blue water.

"The Jeannette was finally released from her icy fetters after an imprisonment of twenty-one months—that is, almost the entire duration of our voyage—during which time we had been drifting with the pack. The important point of this drift is that we traversed an immense area of ocean, at times gyrating in almost perfect circles, and it can now safely be said that land does not exist in that area. Of course the depth and character of the ocean-bed and the drift were also determined, as well as the animal life that exists in this part of the world; also the character of the ocean water, and

many other facts of interest which were finished with the discovery of the two new islands.

"At this time we had a feeling of pleasure and pride that our voyage had not been entirely in vain, and we felt sure that we could add considerable to the knowledge of this region of the Arctic; and if we could have got out safely without loss of life, the voyage would have been a grand success. Captain DeLong, in my opinion, entered the ice boldly and deliberately, with the intention of trying the most hazardous route to the Pole that has ever been contemplated. When spoken to on the subject, within a few days after we found ourselves imprisoned, I stated that to be my opinion, and that he had undertaken the most daring and magnificent venture on record.

"To return to the *Jeannette*. She was floating idly, but, of course, could not proceed, being hemmed in on all sides by almost limitless masses of ice in close contact, and having only a small pool in which she could bathe her sides. The starboard half of her old cradle remained, so she was hauled into it, and secured with ice-anchors on the bow and quarter, to await her chances to escape. The rudder had been previously shipped, and the screw-propeller had been found to be undamaged, so every preparation was made to move at a moment's notice. On June 11th Henrietta Island was seen for the last time, to the southeast of us.

"I will now describe the supreme and final moments in the life of the *Jeannette*. At this period of the cruise I was able to spend one hour on deck, three times a day, for exercise, the last relapse of my left eye having taken place a month previous. I went on deck at one o'clock in the afternoon, and saw the hunters start out. The day was clear and beautiful, there was a light wind from the northeast, and in some quarters of the horizon it was misty and very much as in the trade-wind regions of the Pacific. A large party was sent out to get seals and guillemots, if possible. My hour was up, but I still lingered on the quarter-deck, for the ice on the port side, some twenty-five yards distant, had commenced to move toward us, and I was fascinated by the dangers of the situation.

"The captain was on deck, and immediately hoisted the hunters' recall, which was a big, black cylinder, at the main truck. They began to come in, one by one, and the la-

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ones were Bartlett and Anequin, who were dragging a seal with them. At the time of their arrival the ice was in contact with the port side of the ship, and she was heeled about twelve degrees to starboard, with port-bilges heavily pressed. The two hunters approached on the port side, passed their guns to me, and came up by a rope's end that I had thrown to them. The pressure on the ship was terrible, and we knew that she must either lift and be thrown up bodily upon the ice, or be crushed. During the whole cruise, provisions, tents, and boats with sleds, were kept ready for immediate use, and at this time every step was taken for the impending catastrophe.

"About three p. m., Machinist Lee reported the ice coming through the bunkers, and the captain immediately ordered, 'Lower away!'—men having been previously stationed at the boats' falls, and some provisions put on the ice. Melville immediately contradicted the report, and the captain delayed the order. Thus the ship lay for two hours and a half, the pressure of the ice relaxing at times and the ship almost righting. Then again she would be hove over to twenty-three degrees, and we felt sure there was no longer any hope for her, for she would not lift. There was nothing in the world to be done to assist her at that time. We had to depend upon her shape. She floated much higher than when we entered the pack, and that led us to hope that she would lift easier in the nip; for the pressure of the ice would be below the point where her sides commenced to tumble home. On the starboard side, while she was heeling, the nip was felt on her timber-heads, which were the weakest parts of the frame; but on the port side she was pressed below the turn of the bilge. Her fate was practically decided the moment we found she would not lift, and a large amount of provisions and clothing was then placed on the ice in readiness for the catastrophe.

"One watch went to supper at half-past five, and the officers had bread and tea in the cabin at six. I was on the sick-list, with eyes bandaged, but told the doctor that I could get the charts and instruments together and be of assistance. He said he would ask the captain. Each officer kept his knapsack in his room, and most of us thought it was time to have them on deck; but we would not make the move until ordered for fear of attracting the attention of the crew, who

were at work on provisions and boats. While I was taking tea, I saw Dunbar bring his knapsack up, and put it in the cabin. Feeling that the moment had arrived, I went for mine, and at the head of the ladder on my return the doctor said to me:

"Dan, the order is to get knapsacks."

"It seems that he had stepped below and found water in the wardroom, which he reported to the captain, and the order was then given to abandon the ship. The national ensign was hoisted at the mizzen, and Captain DeLong was on the bridge directing the work.

"Lieutenant Chipp was confined to his bed. I threw my knapsack over the starboard rail, and returned for clothes, but on stepping into water, when half way down the wardroom ladder, I realized that the ship was filling rapidly. The doctor and I then carried Chipp's belongings out, and I was told to take charge of the medical stores, especially the liquor. The ship in this condition was like a broken basket, and only kept from sinking by the pressure of the ice, which at any moment might relax and let her go to the bottom.

"The crew worked well, and Edward Star, seaman, especially distinguished himself. He was doing duty at the time as paymaster's yeoman, or 'Jack o' the Dust.' The order was given to get up more Remington ammunition, and he went into the magazine when the ship was filling rapidly and succeeded in getting two cases out. This man was in Lieutenant Chipp's boat afterward. We always thought him a Russian, but he spoke English very well and never would speak of his nationality; but during his dreams he talked in a language that was neither English, French, German, Swedish, Spanish, nor Italian, and most of the men thought it was Russian. He was an excellent man and a giant in strength. The captain thought a great deal of him, for he served him faithfully in every responsible position.

"When the order was given to abandon the ship her hold was full of water, and as she was heeling twenty-three degrees to starboard, at the time the water was on the lower side of the spar-deck. We had a large quantity of provisions on the ice about a hundred yards from the ship, but Mr. Dunbar, who was alive to the occasion, advised the shifting of these to an adjacent and more favorable floe-piece. It took us till eleven p. m. to effect the removal. We also had

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three boats—namely, the first cutter, second cutter, and the whale-boat. As soon as Dr. Ambler had looked out for Chipp, he relieved me at my post, and I went to work with No. 3 sled party, which I had been detailed previously to command. The order was given to camp and get coffee; so we pitched our tents abreast of the whale-boat, and I set about fitting out for the retreat.

"While waiting for coffee I walked over to the ship to take a final look at her, and found the captain, Boatswain Coles and Carpenter Sweetman on the port side looking at her under-water body, which was hove well out of water. I observed that the ship's side between the foremast and smoke-stack had been buckled in by the pressure, and that the second whale-boat was hanging at the davits, and also that the steam-cutter was lying on the ice near by. Coles and Sweetman asked the captain if we could lower the second whale-boat, and the captain said 'No.' The three boats, however, were considered enough; and while journeying on the ice we afterwards found Chipp's boat to be the favorite with all hands, because she was considered short and handy, with sufficient carrying capacity for eight men. I then suggested to the men to return to camp, for the captain doubtless wished to be left alone with the Jeannette in her last moments.

"We three returned to the camp together, having to jump across numerous wide cracks and from piece to piece, and soon after the watch was set and the order given to turn in. Most of us obeyed the order promptly, and were just getting into our bags when we heard a crack and a cry from some one in the captain's tent. The ice had cracked immediately under the captain's tent, and Erickson would have gone into the water but for the mackintosh blanket in which he and the others were lying—the weight of the others at the ends keeping the middle of it from falling through. The order was immediately given to shift to another floe-piece. This was about three hundred yards from the untenable ship. After about two hours' work we succeeded in shifting all our goods and our three boats to it. We then turned in.

"About four o'clock I was awakened by seaman Kuehne calling his relief, Fireman Bartlett, who was in our tent. Kuehne called to Bartlett that the ship was sinking, and the latter jumped to the tent door and saw the spars of the Jeannette after the hull was below the surface. We heard the

crash, but those were the only two men who saw the vessel disappear. It was said that the ice first closed upon her, then relaxing allowing the wreck to sink; the yards caught across the ice and broke off, but being held by the lifts and braces were carried down; depth, thirty-eight fathoms, as I remember.

"The next morning the captain and others visited the spot, and found only one cabin chair and a few pieces of wood—all that remained of our old and good friend, the *Jeannette*, which for many months had endured the embrace of the Arctic monster.

"The *Jeannette* sank about four o'clock on the morning of Monday, June 13th, 1881. Daylight found us encamped on the ice about four hundred yards from where the ship went down. We had slept late after the exhausting work of the previous night. The day was spent by us in arranging our effects and in gaining rest, which was much needed. Many of us, indeed quite a quarter of the number, were incapacitated for active work by reason of severe cramps caused by tin-poisoning by tomato cans. Among the sick were Chipp, Kuehne, the Indian Alexei, Lauderback, and the cabin steward.

"The doctor recommended delay until the sick party should have recovered; but the time was not wasted, and the rest of the crew began the work of dividing the clothing and stowing the sleds and the boats. We had as provisions about 3,500 pounds of pemmican in tinned canisters of forty-five pounds weight each, about 1,500 pounds of hard bread, and more tea than we needed. We had also some canned turkey and canned chicken, but these we disposed of in the first camp. We had a large quantity of Liebig's extract—a most important element in our diet. We had a large quantity of alcohol, which was intended to serve as fuel for cooking during our retreat. We had plenty of ammunition, and a good equipment of rifles. The provisions were stowed on five sleds, each having a tier of alcohol cans in the middle, and on either side a tier of pemmican canisters. Another sled was loaded with bread and a limited quantity of sugar and coffee. The weights of the sleds, when loaded, were as follows:

- "No. 1—Ship-made sled, 1,500 pounds.
- "No. 2—McClintock sled, 1,300 pounds.
- "No. 3—McClintock sled, 1,200 pounds.



POLAR BEARS.

"No. 4—McClintock sled, 1,300 pounds.

"No. 5—McClintock sled, 1,300 pounds.

"Total, 6,600 pounds.

"We had three boats, mounted on ship-made sleds, each of which consisted of two heavy oak runners, about twelve inches high and shod with whalebone, of about twelve feet in length, and having eight to ten cross-pieces made from whiskee-barrel staves. The weight of the first cutter, with sled and outfit, was 3,000 pounds; weight of second cutter, with sled and outfit, 2,300 pounds; weight of whale-boat, with sled, 2,500 pounds. Making a total of 7,800 pounds, or a grand total of sleds and boats of 15,400 pounds.

"To draw these we had a working force, when the retreat commenced, of twenty-two men; and the dogs were employed, with two light St. Michael's sleds, to drag a large amount of stores we had in excess of those permanently stowed upon the larger sleds. Each man had a knapsack stowed away in the boats; each knapsack contained one change of underclothing, one package of matches, one plug of tobacco, one spare pair of snow-goggles, and spare pair of moccasins.

"On the 16th of June, three days after the Jeannette had sunk, the captain called all hands and read an order to the effect that we should start at 6 P. M. on the following day, on our march south; that we would work during the night and sleep during the day, to avoid the intense light, which might cause snow blindness, the routine to be as follows:

"At half past five P. M., call all hands, have breakfast, and break camp at half past six; at twelve, midnight, stop one-half hour for dinner; at six A. M. stop for supper and sleep. Ration table during the march to be as follows:

"Breakfast (per man)—Four ounces pemmican, two biscuits, two ounces of coffee, two-thirds ounce sugar.

"Dinner—Eight ounces pemmican, one ounce Liebig, one-half ounce tea, two-thirds ounce sugar.

"Supper—Four ounces pemmican, one-half ounce tea, two-thirds ounce sugar, two biscuits, one ounce of lime-juice.

"This amounted to less than two pounds per man per diem. The party was divided into five tents.

"No. 1—Captain DeLong, Mr. Collins, and five others.

"No. 2—Lieut. Chipp, Dunbar, and five others.

"No. 3—Lieut. Danenhower, Newcomb, and five others.

"No. 4—Engineer Melville, and five others.

"No. 5—Dr. Ambler, Boatswain Cole, and five others.

"The captain had also an office-tent, in which half of his men were berthed. The tents were nine feet long by six in width, and required very close stowage for seven men. Each tent had a fire-pot, a heavy galvanized-iron kettle, in which a copper kettle was arranged, having an alcohol-lamp beneath it, with a circular asbestos wick ten inches in diameter. It also had a stewpan on top. A cook was detailed to each tent, with an assistant to provide snow and to draw provisions. Each tent had a Mackintosh blanket nine by six, upon which the men could lie at night. The sleeping-bags were made of deer-skin, covered with hairless seal-skin or cotton drilling. In our tent there were three such single bags and two double ones; but generally single bags were in the other tents. Ours had been designed by Mr. Dunbar in November, 1879, and were the only ones that did not require alteration after we got on the ice. Each boat was provided with an outfit of oars, a boat-box, with suitable articles for repairing damages, and ammunition for the arms that had been detailed to each boat.

"The order said that the course would be south 17° east (magnetic), which was south (true). I may here state that the boat compasses were intentionally left behind, because the captain said he preferred the pocket prismatic compasses. We had six splendid Richie boat compasses, always kept in the Jeannette ready for instant use, but they were, as I said, left behind, much to our detriment at a later period. Each boat had been provided with a luff-tackle, anchor, and grapnel. Of course the anchor and grapnel had to be left behind; but the whale-boat retained the luff-tackle, which proved extremely useful at a later date. The order of march was as follows:

"All hands, except a special detail of four men, were to advance the first cutter to the first black flag established by Ice-pilot Dunbar, who was to go ahead to select the best road; then the second cutter and the whale-boat and provision-sleds were to be brought up to the first station as rapidly as possible. While this was going on, the special detail of four men, with St. Michael sleds, were to advance the extra provisions; and the sick, with the hospital sled, were also to move to the front.

"We were ordered to sleep during the afternoon of June 17th, and on the anniversary of the battle of Bunker Hill we commenced our long retreat. Chipp was on the sick-list, and I, with my eyes constantly bandaged and covered, could only do light duty—so the task of leading the working-party fell to Melville, the captain directing. Each officer and man was provided with a harness, which consisted of a broad canvas strap, fashioned to go across the chest and over one shoulder, and which had to be attached to the sled by a lanyard.

"At last the order was given to break camp. The order was obeyed with enthusiasm, and the drag-rope of the first cutter was immediately manned, Melville, Dr. Ambler, myself, and two other men stationing ourselves on either side of the boat with harness fast to the thwarts, and then our work commenced in terrible earnest. The snow was knee deep, the road very rough, and the ice full of fissures. Through the former our feet sank easily, soon wearying the best of us; over the fissures, if not too wide, we had to jump the boats, and we had to drag the sled over lumps of ice that would have taken a whole corps of engineers to level. But we advanced steadily, if slowly. We reached one of the black flags that had been planted by Ice-pilot Dunbar, but seeing that he had planted another one ahead of us we pushed on with the first cutter to reach that too. This goal reached, we found that we were a mile and a half from the starting-place, and that it had taken us three hours to make the distance.

"But we, in our enthusiasm, had gone too far. It appears that the captain had only intended that we should make a single short station on the first day, but the order had probably been misunderstood by Mr. Dunbar, whose only wish was that we should make as good progress as possible. So we had to return; but on our way back we found that the ice had shifted and that our original road had been entirely broken up, and so we had to leave our sled midway between the two flags and then go to the assistance of the rest. We soon found that we had been fortunate with the first cutter. During our absence the captain, with a special detail and dogs, had attempted to advance the second cutter and whale-boat. He had launched the whale-boat across a fissure, and had broken the sled in hauling her out. No. 1 sled, named the 'Sylvie,' had also been broken, as well as two others.

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"The ice was all in motion, and we had a very bad outlook, with our boats and sleds at various points on the road. Chipp had been ordered to advance with the hospital sled, with Kuehne and Alexei and three men to assist him. The sled was heavily laden, and the work was too severe for the first lieutenant in his weak state, and the result was that he fainted from sheer exhaustion, requiring the services of the doctor to restore him.

"On our first outward march, Machinist Walter Lee had fallen out of the ranks and rolled upon the ice in agony with cramps in the calves of his legs—a result, doubtless, of his having worked for so many months on the iron plates of the fire-room, oftentimes with wet feet. He was a large, heavy-bodied man, and the unusual task fell heavily upon him at first.

"At six o'clock in the morning (we had been in the region of the midnight sun since the early part of May) we had advanced the second cutter about three-quarters of a mile from the old camp; the whale-boat was about a hundred yards back of her. Several disabled sleds stood at intervals along the road, while the balance of our stock still remained in the spot where they had been placed before the Jeannette went down. It was a cold, foggy morning, and we were very much chagrined at our ineffective efforts. We had a cup of tea, then brought up everything in the rear of the position of the second cutter, and then camped down, leaving the first cutter about three-quarters of a mile in advance. Everybody voted this the hardest day's work he had ever done in his life.

"For two days we stayed to repair damages, and we all concluded that the 'now or never' policy of progress was a very ineffectual one. It would have been better for us to have spent a few minutes in removing the ice obstacles out of our way, rather than to attempt to drag the sleds over them by brute force. I did not know much about sleds and just how much spread to give the runners, but fortunately seaman Leach was from the State of Maine, and I depended on his judgment; and I may add, that our boat-sled never broke down once after he and Bartlett—an old mountaineer and Californian traveller—had secured it.

"After two days we again made a start for the south. We made slow progress, about a mile or a mile and a half a day,



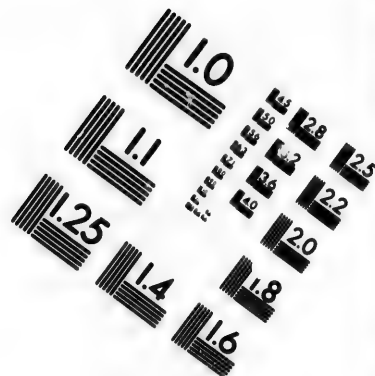
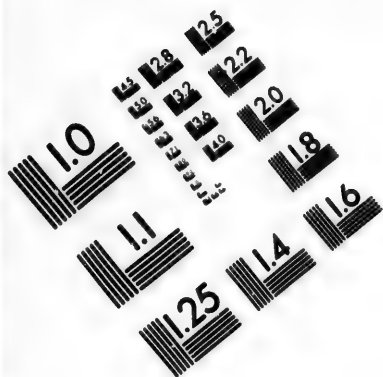
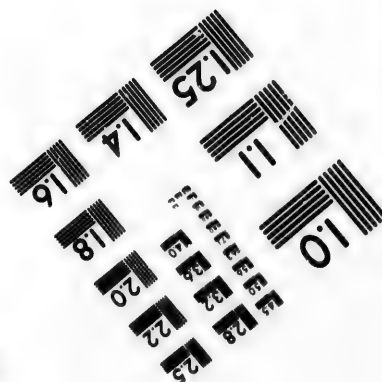
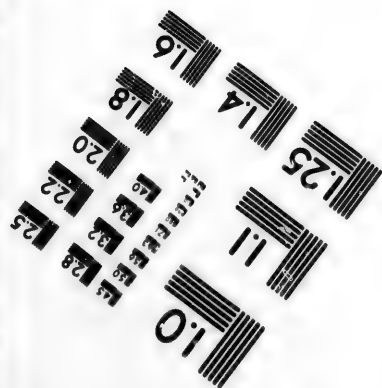
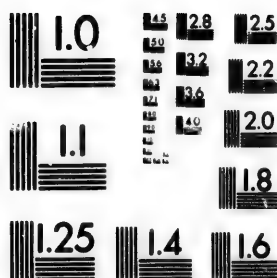


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over the rough and moving floe. It was terrible work for the men. They had to go over the road no less than thirteen times—seven times with loads and six times empty-handed—thus walking twenty-six miles in making an advance of only two! The empty-handed business was the worst.

"On the 19th of June the captain called me into his tent and told me to go with the hospital sled because, he alleged, I could not see. I remonstrated, but without avail. I went back to my tent, naturally deeply mortified to know that thirty-three men were working for their lives, and I was not allowed to help even at the cooking, although physically I was one of the strongest men of the party. That morning I started with the hospital sled, which was dragged by seven dogs, driven by Erickson, the doctor and I assisting over the hummocks. We advanced over rough moving ice with great difficulty about half a mile, and then set up the tent for the three invalids—Chipp, Lauderback, and Alexei—to await the coming up of the rest of the party. I myself would never go inside the hospital tent. Thus the survivors trudged along, the well heavily handicapped by the six or seven who furnished no motive power at all. Twenty-one men did all the work for the thirty-three.

"At the end of the first week the captain found by observation that the drift had more than neutralized the way covered by our advance; that, in fact, we had lost twenty-seven miles by the drift to the northwest in excess of our march to the south. This, of course, was kept a profound secret.

"By-and-by Lauderback and Alexei got well enough to work; and finally Mr. Chipp, after several ineffectual requests to be put on duty, was allowed to relieve Melville and take charge of the working party. Melville was put in charge of the road gang, which consisted of Lee and seaman Johnson, with the dingy and the team of dogs. Their principal duty was to keep in position the blocks of ice that were used as temporary bridges to enable the sleds to pass safely over the fissures. We often came to wide water holes, which caused us much delay in ferrying over. The method of doing this was as follows:

"First, a large ice piece was found; on this the boats and sleds were placed, and then all the floating mass was drawn over by the men on the other side, who had transported them-

selves across by the little dingy or even on smaller ice floes. Some of these water spaces were as much as a hundred yards wide. These openings were not connected, and of course could not be used in the direction we wished to go. On many occasions the boats had to be launched and paddled across, and then hauled up again on the opposite side. Chipp took charge of this part of the work admirably, and the men were always glad to have him at their head. It was wonderful how he kept up.

"As soon as the list was clear of sick the hospital tent was dispensed with, and I for many days walked after the whale-boat, but with Melville always watching me in jumping cracks and pulling me out when I fell in. I found it very difficult to judge of distances with one eye bandaged and the other covered with a dark goggle. Collins generally walked with me; Newcomb and seaman Star followed other sledges, all of us suspended from work. Besides these the captain, Chipp, Melville, and the doctor added little or nothing to the motive power. Eight persons out of thirty-three, or twenty-five per cent. of the whole, were thus, so to speak, not working their passage across the ice.

"In the latter part of June the snow all melted and traveling was better, but the men had to wade through pools of thaw-water and their feet were constantly wet. Seaman Kaack's feet were covered with blood-blisters, but he never gave in. Nindemann and Bartlett were always the leading men in dragging the boats, each being stationed at the bow to slew them and to lift them over heavy obstructions. As the roads became better we were able to advance two sleds at a time, but we would often have to jump them from piece to piece in crossing leads. Jack Cole and Harry Warren were the leading men of one party, and Bartlett and Nindemann of the other. The number of times passed over the ground was now reduced to seven, and the advance was thus very much facilitated. Mr. Dunbar used to start out, with two or three flags on his shoulder, and pick out the best road, planting his flags here and there in prominent places. The old gentleman was very careful and efficient, though the captain would often take an entirely different road—on several occasions insisting on ferrying the goods across after the ice had come together within fifty yards of us.

"About the 12th of July we saw a 'whale back' that looked

very much like a snow-covered island. There had been some slight changes in the course previous to this. I think it was changed to south (magnetic), which would be about south 17 (true), for there was about 17 degrees of easterly variation. The captain then shaped the course toward the point where land was thought to have been seen. At this time we began to see a heavy water sky to the south and southeast, and the ice to the southwest was more broken and in greater motion, making travelling very difficult. About July 20th we worked nearly twelve hours in advancing 1,000 yards over small pieces of ice constantly shifting. We could not float the boats. The land already mentioned appeared greatly distorted by atmospheric effects, and indeed, until within a few days of reaching it, a great many would not believe that it existed at all.

"Our progress toward the land was very slow, but finally we could see the glaciers and water-courses upon it quite distinctly. We were shaping a course toward the northeast end of the island, the drift of the ice being along the east face. At times we were forced to remain idle in our camping-place, it being quite impossible either to move over the rough, broken ice, always in rapid motion, or to launch the boats. On the 24th of July we reached a point not more than two miles distant from the land, but the men were so exhausted that we had to camp. Next morning we found that we had drifted at least three miles to the southward and along the east side of the island.

"July 27th was very foggy, and we were working our way through living masses of ice, when the mist lifted a little and an immense sugar-loaf towered above us. We had been swept in by the current, and now seemed to be our chance of reaching the ice-foot of the island, which was very narrow, rugged and broken, being aground in nineteen fathoms of water. We finally got everything on one big floe-piece, and as we caromed on the ice-foot we made a rally and jumped everything upon the ice-clad beach. But before the last boats and sleds were hauled up the floe-piece drifted away, leaving them perched on the edge of the ice in a very dangerous position, and they had to be left there for some hours. Then came the difficult work of getting the boats and sleds through the very rough and broken ice-fringe along shore.

"About six P. M. we had succeeded in reaching some smooth pieces near the south cape, and there we camped down, each tent being on a separate piece of floe. There was a solid breakwater outside of us—consequently we were not in any great danger, though the blocks we were on were sometimes in motion as the tide rose and fell. At this point the sides of the island were very bold and steep, composed of trap-rock and a lava-like soil, very dry—so much so that frequent land-slides were occurring all the time we were there. Mr. Collins and I took a walk over the rough ice and along the south point of the island in order to get a view of the south side. It appeared very rugged and trended off to the west-northwest. From a high hummock we saw land to the west-northwest.

"About seven P. M. the captain mustered everybody on the island. It was so steep that we could hardly get a footing. He then unfurled the beautiful silk flag that had been made for him by Mrs. DeLong, and took possession of the island in the name of the President of the United States, and called it 'Bennett Island.' This was succeeded by hearty cheers, three times three, with a good American 'tiger.' There were millions of birds nesting in the cliffs, and their noise was almost deafening. I think one seal was seen, but no walrus, during our stay of nearly a week on the island. The south cape was called Cape Emma, after the captain's wife, and was in latitude 70 deg. 38 min. north, longitude 148 deg. 20 min. east.

"The whaleboat was so long that in crossing hummocks the stern-post used often to receive heavy knocks and her garboards had been stove; indeed, she had been shaken up so badly that she was as limber as a basket and required repairs, as did the other boats. The captain and doctor thought, too, that the party needed rest and change of diet—so the men were sent out to get birds and driftwood, so that we could economize on our alcohol. In a few hours they knocked down several hundred birds with sticks and stones. These were brought into camp and divided out. Their effect after being eaten was like that of young veal, and pretty nearly every one of the party was made sick, the doctor included. I used to eat half a peck of scurvy grass every day, and that kept me well. We had finally to return to pemmican, and were very glad to do so after such a surfeit of birds.

"Mr. Dunbar and the two Indians were sent up the east side of the island to explore. They were gone two days and reached the northeast point. They found the land on the east side was more promising than on the south. They



PUFFINS, AUKS, AND OTHER ARCTIC BIRDS.

found several grassy valleys, some old deer horns, some driftwood, and saw large numbers of birds. Lieutenant Chipp, with Mr. Collins and a boat's crew, explored the south and west sides, and promising reports came from them. A

fair quality of lignite was found in several places. Mr. Mcville experimented with it, and determined that it would be serviceable fuel for steaming purposes.

"The tidal action at the island was very great, and quite remarkable for this part of the world. The ice outside of us was in constant motion, and seemed to be lifted regularly with the rise of the water. We had a tide-gauge set up, and it was observed every hour by Bartlett, Nindemann, and Lee. As I remember, the greatest rise and fall was about three feet; they were regular six hour tides. We were there near the time of full moon, and the 'vulgar establishment' was properly established. At Cape Emma the captain got a set of equal altitudes of the sun for chronometer error, but the weather was generally misty and unfavorable for such work. A box of geological specimens was obtained, and is now in my charge, it having been recovered from the captain's cache, near the mouth of the Lena. The doctor was very enthusiastic about certain amethysts, opals, and petrifications that he had obtained; these are probably lost.

"While on the island I observed that the sea to the south and west was freer from ice than that to the eastward, and that water clouds to the northwest were very common; and it occurred to me that in good seasons a vessel could reach the island, which might form a good base for explorations farther to the north.

"We left Bennett Island about August 4th. We were then fifty-three days out from the place where the Jeanette had sunk. We were fortunate enough in being able to launch our boats and to make better progress in the cracks between the floes. But we still had to keep our sleds for a short time longer. Some of the dogs rendered us very important services; but about half the number were now disabled by famine and weakness. We had forty originally, but about sixteen had died, or had been killed by the others during the two winters in the ice. After the stock of dog-food gave out, and owing to the scarcity of game, there were long periods of starvation for the poor brutes. Each man had a favorite animal, and would share his own rations with him; but this was not sufficient. At Bennett Island we still had, I think, twenty-three left, and the day before leaving eleven of the poorest of these were shot. We took the remaining twelve in the boats, but in passing close to big

floe-pieces these gave us a great deal of trouble by jumping out and running away. Finally, Prince and Snoozer were the only two that had sense enough to remain by us.

"For the next eighteen days we were working between floe-pieces, and sometimes making as much as ten miles a day on our course to the southwest. Several times a day we would have to haul the boats out, and make portages across the large floe-pieces that barred our progress. This was very severe work. We had at this time retained only the boat sleds, having left the provision sleds and all superfluous articles on a floe-piece about August 6th. We now worked during the day and slept during the night.

"At Bennett Island the doctor, who belonged to my boat, had been transferred to the captain's, and Mr. Melville was placed in charge of mine—that is, the whale-boat. I was ordered to remain in the boat as a passenger, and to assist in emergencies. I always carried my own baggage, and assisted whenever possible. Dunbar was detailed with Chipp.

"We made very good progress until about August 20th. On that day the leads were very open, and we thought we were all right. The wind was fresh and favorable; the first cutter and whale-boat, which followed closely, passed safely through great quantities of ice, but the second cutter was in the rear, and became jammed by the floe-pieces coming together very suddenly, and Chipp had to haul out and transport his boat about a mile in order to get her afloat again. In many cases a passage was obtained by prying the floe-pieces apart; but several times these sprang back, thus cutting off the advance of the second cutter. It was very hard and slow work, but much better than dragging the sleds over the ice.

"The delay caused by getting Chipp's boat afloat was very fatal to us, for the wind shifted suddenly and we were forced to camp after waiting for him several hours. The ice jammed up during the night so that we had to remain there ten days without being able to move. Then land came in sight, and we seemed to be drifting along the north face of an island which the captain at first thought was New Siberia, but it was afterward found that we were drifting along the north coast of Thaddeoffsky. We drifted along this coast until August 28th, when, at last, we were again able to make a move. We

called the place the Ten Day Camp. But we had used the delay in making repairs, and the food had been distributed per capita among the boats.

"On the afternoon of the 29th we launched the boats again and worked in the pack for about two hours, when farther progress was again barred by the ice. Finally, new connecting leads were found, and we proceeded to the southward and eastward for about five hours. Then we hauled up for the night on a small piece of floe-ice, which was drifting very rapidly to the southward and down the passage between New Siberia and Thaddeoffsky.

"The next morning found us in navigable water, and with land about seven miles distant to the westward. Then we rounded the south point of Thaddeoffsky. We found the island to be composed of mud hills that were wearing away rapidly and forming shoals off the land. Beyond the low hills there was a wet, mossy tundra, upon which we camped for the night. All hands were then sent out hunting. Reindeer tracks and traces were numerous, but none were seen. Bartlett reported that he found footprints in the sand made by a civilized boot. The steward found a hut about two miles west of the camp, and a small piece of black bread, as well as a small tusk and a knee-piece for a boat, fashioned from a deer horn. The next morning we proceeded west along the shore, the water being very shoal. We saw remains of several huts and quantities of driftwood. We also saw lots of ducks and wild fowl, and Newcomb succeeded in getting about six brace of ducks, which were very welcome. That night we tried to land, but after several ineffectual efforts gave up the attempt, as the water was too shoal for our boats.

"The following is a detailed description of the boats, with lists of persons attached to each:

"*First Cutter.—The Captain's Boat.*—Captain DeLong, Dr. Ambler, Mr. Collins, Nindemann, Erickson, Gortz, Noros, Dressler, Iverson, Kaack, Boyd, Lee, Ah Sam, Alexei.

"Extreme length, 20 ft. 4 in.; breadth, 6 ft.; depth, 2 ft. 2 in., from top of gunwale to the top of keel; clinker built, copper fastened, inside lining; drew 28 inches loaded, and had the greatest carrying capacity of the three; fitted with mast and one shifting lug sail; pulls six oars, and was an excellent sea-boat. She had a heavy cak keel-piece to

strengthen her in hauling over the ice, and it was retained after reaching the water. She was fitted with weather claws at Semenoffski Island, September 11th, by Nindemann.

"Second Cutter.—Lieutenant Chipp, Dunbar, Sweetman, Star, Warren, Kuehne, Johnson, Sharvell.

"Extreme length, 16 ft. 3 in.; breadth, 5 ft. 1 in.; depth, 2 ft. 6 in., from top of gunwale to top of keel; clinker built, copper fastened, a very bad sea-boat; she was carefully fitted with weather claws; had one dipping log sail and four oars. She had not sufficient carrying capacity for Chipp's allowance of provisions, so the captain had two extra tins of pemmican in his boat when we separated. This is an important fact, for Lieutenant Chipp must have run out of food very quickly.

"Whale-boat.—Engineer Melville, Lieutenant Danenhower, Newcomb, Cole, Leach, Mansen, Wilson, Bartlett, Lauderback, Charles Tong Sing, Anequin.

"Extreme length, 25 ft. 4 in.; breadth, 5 ft. 6 in.; depth, 2 ft. 2 in., from top of gunwale to top of keel; clinker built, copper fastened, drawing about 24 inches when loaded, this being caused by the heavy oak keel-piece, similar to those of the first and second cutters. She had one mast and one dipping log sail, and was fitted with weather claws about September 11th. The master boat-builder at Mare Island told me that she was one of the best fastened boats that he had ever seen, and our experience proved it; for the racket she stood on the journey over the ice was almost incredible. The plans of the boats I got from Carpenter Sweetman at Kotelnoi Island, September 4th, 1881.

"The captain decided to work along the shoal that lies between Thaddeoffsky and Kotelnoi Islands. There was a moderate wind from the eastward, and the captain tried to keep close in, in about four feet of water. The result was that the first cutter was constantly grounding, and then laboriously getting off again. We continued on our course to the southward, the captain's boat getting in breakers at one time and calling for our boat to pull him out. There was not much ice at the time, and it was decreasing. One day, about noon, we ran through a line of drift ice, and the whale-boat struck on a tongue that was under water. She began to fill rapidly, and we had to haul her out, but not before she was two-thirds full could we reach a suitable ice piece. The

plug had been knocked out, but she had sustained no other damage. That afternoon we passed through a large water space several square miles in area, with a heavy sea running. We were steering dead before the wind, having to follow in the wake of the captain, and it was very difficult to keep from jibing.

"About three P. M. the coxswain let her jibe, and she was brought by the lee by a heavy sea on the starboard quarter. The sheet was not slacked in time, and the boat was hove almost on her port-beam ends. A heavy green sea swept over the whole port side and filled her to the thwarts; she staggered and commenced to settle, but every man with a baler in hand quickly relieved her, and she floated again. I was never frightened before in a boat, but it was a most dangerous and terrible situation. There was no chance for the captain or Chipp to have assisted us, and had another sea boarded us not a man of our party would have been saved.

"The weather was very cold. Two hours afterward we met the ice, among which we made our way. Chipp's boat was still astern and in the water-hole, and we were very anxious about his safety. The captain hauled up about seven P. M., and camped with us. The next day the gale was still blowing, and Chipp's boat still missing, so about six P. M. the captain hoisted a black flag.

"On the following day Bartlett reported that the ice was closing around us, and that if we did not move we should be shut in. Two hours afterward all outlets were closed. Land was also in sight at this time, being Kotelnoi Island. Erickson was the first to see Chipp's boat, and presently we saw two men making their way over the floe and jumping across the obstructions. It was Chipp, with Kuehne. His boat had been nearly swamped, and in a sinking condition he had reached a piece of ice and managed to haul up. Star was the only man with his boat at that time who could walk; the others required ten or fifteen minutes to get up circulation in their benumbed limbs. The captain had previously given written orders that in case of separation each boat should make the best of its way to Lena River, but he had recommended touching at Kotelnoi Island. Chipp had fortunately decided to follow these instructions, because he had not his allowance of food. We ourselves had been on half

rations for some time. He had remained on the ice about twenty-four hours, and then got a chance to get under way. He told us that by making a portage of about two miles we could launch our boats and fetch the land. He sent his men to assist us, and after six or eight hours of terrible work we succeeded in getting our boat to the second cutter. That night we reached the southeast corner of Kotelnoi Island and camped on a low cape extending well out from the mountain and forming a beautiful bay.

"This was September 6th, I think. We stayed there about thirty-six hours. Large parties were sent out hunting, as numerous deer-tracks had been seen. Next morning we got under way again and worked along shore until about noon, when we had to make a long and laborious portage, during which Mr. Dunbar fell down exhausted and with palpitation of the heart. We continued until midnight, and then camped on a bleak, desolate spot. Next morning, September 7th, we shaped a course for the island of Stolbovoi from the south point of Kotelnoi, fifty-one miles distant to the southwest. We had fresh breezes the first day, and during the night got into a very bad place and came very near being smashed up by drift ice. We passed in sight of Stolbovoi; but it was not considered worth while to land on the barren island, which was, besides, too distant.

"On the night of September 9th we hauled up on a piece of ice off the north end of Semenoffski Island, and there slept. On September 10th we rounded the north end of this island and came down the west shore, stopping to cook dinner and to examine the island. Having seen the tracks of deer going toward the south end of the island, the captain suggested that a party of hunters deploy across it, and advance to the south in hopes of getting a deer. About ten of us went. I went along the beach with Kuehne and Johnson, Bartlett, Noros, Collins, and the Indians skirting the hills. We raised a doe and fawn running to the northward as fast as possible, they having previously seen the boats. Several shots were fired, and the doe fell under Noros' last shot. We hurled the body down a steep bluff to Chipp, who had it butchered, and the captain ordered all served out, having previously given orders for all hands to camp.

"That evening the captain told Melville that he and many of his party were badly used up, and must have rest and a



A POLAR BEAR ATTACKED BY WOLVES.

full meal before proceeding. All these days—for the past twenty—we had been on very short allowance and had never had a full meal. Melville said that he and his party were in excellent condition and wanted to move on, and did not like losing time. The entire deer was served out and we had orders to remain till Monday morning, or about thirty-six hours. We had noticed that after two or three days of north-east winds it generally finished up with a heavy gale from that quarter, and it was thought we would be likely to get it on Monday or Tuesday. That evening Chipp came over and asked me to go out with him and get some ptarmigan if possible. We came upon a large covey, but could not get a shot. This was my last talk with Chipp. He was in better health than usual and was cheerful, but not altogether satisfied with the outlook.

“On Monday morning, September 12th, we left Semenoffski Island, and stood to the southward along the west side of the island, lying to the south. About half-past eleven A. M. we ran through a lot of drift ice, following the first cutter. It was pretty close work, and our boat had to luff through between two big cakes of ice. The sheet was hauled aft in luffing, and the boat sided over against the lee-piece, thereby knocking a hole in her starboard side. She filled rapidly, and we barely succeeded in making fast her bow to an adjacent cake of ice; there we put on a lead patch and remedied the damage. This was the last piece of ice that we saw. While repairs were going on I had a chat with Collins, who was as amiable as usual, and had some pleasant story to tell me. The doctor was also very affable, and asked particularly after my health and comfort.

“We then started on a southwest course. The captain kept his boat almost right before the wind; it was very difficult to keep from jibing, and as the whale-boat was the faster sailer it was hard to keep in position. Our orders were to keep astern of the captain, within easy hail, and for Chipp to bring up the rear, he being second in command. The wind and sea increased very rapidly, and about five P. M. we were out of position about nine hundred yards off the weather quarter of the first cutter. Melville asked me if we could get in position safely, and I told him that by jibing twice and lowering the sail we could do so. He then told me to take charge: so I jibed very carefully; ran down to the captain's wake and

then jibed her again, each time having lowered the sail, and having gotten out two oars to keep up the headway before the sea while shifting the sail. I then had seaman Leach put at the helm, as he was the best helmsman in the boat. My eyes would not permit my taking the helm or I would have done so. We then ranged along the weather side of the first cutter, had our sail close reefed, and to keep from running away from her had to take it in, thereby allowing the seas to board us.

"About dusk the captain stood up in his boat and waved his hands as if to separate. This is what the men say; I did not see it. At the same time Chipp was said to be lowering his sail. Melville asked my advice, and I said we should steer with the wind and sea four points to the north quarter; that we could make good weather of it until dark, when we should heave to on account of the liability to meet young ice in the darkness. In the meantime I advised that we should prepare a good drag. He told me to go ahead and do it. So I ordered Cole and Mansen to take three hickory tent-poles, each about eight feet in length, lash them in a triangle, and lace a strong piece of cotton canvas across it, then take the boat's painter and make a span similar to the bellyband of a kite, and to the middle of this span make fast the luff tackle fall. On the lower end of each tent-pole there was a brass nib which, with the weight of the wet canvas and the bight of the rope, would, I said, probably make the drag heavy enough; if not, we would send down the spare fire-pot and boat bucket to help it.

"The gale was now at its full force, and the seas were running high and spiteful. Leach was steering admirably, but we had to keep four balers going all the time to prevent the boat from filling and sinking. The drag, having been completed, was placed forward of the mast in readiness for use. I had the drag rope coiled down clear for running. The men were very weary. There were only two seamen in the boat who would pull in a seaway, the others being inexperienced, except the helmsman. I had been watching the seas for a long time, and had noticed that they ran in threes, and that there was a short lull after the third and heaviest one. I had the men detailed as follows: Wilson and Mansen at the oars, keeping them peaked high above the sea, Cole at the hal-yards to lower sail, Anequin and the steward to gather the

sail, Bartlett to launch the drag, and Leach at the helm. I gave preparatory orders very carefully—at the words 'Lower away!' to put the helm hard-a-starboard, lower sail and give way with starboard oar, holding water with the port oar, if possible in the seaway.

"I watched more than five minutes for my chance, for our lives depended on the success of that movement. At the proper moment I shouted 'Lower away!' and every man did his duty; the boat came round, gave a tremendous dive and she was then safe, head to sea. We eased the oars and launched the drag. It watched about three points on the port bow—so I sent down the spare fire-pot and a bucket by putting loops, or what we call beackets, on the bales. Cole suggested sending down a painted bag with the mouth open. It filled with water, dragged, and was very effective. We then lay head to sea during the night. A number of the party turned in under the canvas. Melville was exhausted and had his legs badly swollen; so he turned in abreast the foremast, leaving me in charge.

"Leach and Wilson steered with a paddle during the night, and I sat at their feet watching. The upper gudgeon of the rudder had been carried away, so we took the rudder on board. Our fresh water had been ruined by the seas that had boarded us, but late on the night before leaving the island Newcomb had brought in several ptarmigan, which had been dressed and put in our kettle, the other tents not caring to take their share. This proved excellent food for us the next day, as they were not too salt to be eaten.

"At daylight, September 13th, there were no boats in sight, and the gale was still raging. About 10 A. M. I noticed that a new sea was making and the old sea was more abeam. From this I judged that the wind had veered to the southeast and would grow lighter. About noon the water began to tumble in very badly on the port quarter, and the boat was down by the stern. We were thoroughly wet, and the sleeping gear was so water-soaked and swollen that it jammed between the thwarts and could not be shifted in trimming. I rigged the mackintosh on the port quarter, the stroke oarsman holding one corner and I the other for seven hours. This kept a great deal of water out of the boat and acted like a 'tarpaulin in the rigging' to keep her head to sea. At 4.40 P. M., per log, I called Melville and told him that it was

time to get under way. The sea was very heavy, but was falling, and by standing west at first we could gradually haul up to south-southwest as the sea went down.

"We got under way without getting a sea aboard and stood to the westward, and by 8 p. m. were able to haul up to south-southwest, on which course we stood during the night. The second night was more comfortable, but still we were all very wet; but we were perfectly safe. I lay down for an hour abreast the foremast while Melville relieved me, but could not sleep, and soon returned to my old place.

"At 6 o'clock on the morning of the 14th I gave orders to prepare breakfast, and a few minutes later we were surprised by the boat taking ground in two feet of water. We backed off, and I recommended standing to the eastward. I had reckoned that when we rounded to we were about fifty miles off Barkin, our destination; that we had drifted at least fifteen miles to the southwest during the gale, and that we had run about twenty-five miles during the night, so that we were on the shoals north of Barkin. I said if we stood to the west we would have no show; but that if we went east until deep water was reached, and then stood due south to the highlands of the coast, we would find plenty of water and a good landing-place. Melville was of course in command, but he relied on my judgment, as he did in all emergencies.

"Bartlett thought he saw a low beach with logs upon it. I told him to take another good look, and then he said he thought he was mistaken. It was only a smooth patch of water among the shoals. We noticed that the water was only brackish, and that there was a thin skim of young ice near us. We stood to the eastward, occasionally feeling our way south, but always touched the ground quickly when moving in that direction. I noticed there was a very strong easterly set here. The winds were light and southerly; we stood all night about east-southeast, and early next morning got nine fathoms. I then recommended steering due south, but Melville wanted to go southwest, because that was the captain's course; so I assented and shaped a southwest course, which we continued to steer until the morning of September 17th. The winds were very light, and we often had to pull the boat. I was at the coxswain's feet conning the boat.

"At daylight we got ten feet of water, and soon after saw a low beach. We made two attempts to land through the

breakers, but could not get within a mile of the shore. The land trended north and south, and I said that we were evidently south of Barkin, and that if there was water enough we might fetch it that night from the southward, as we had a good breeze about east. With a view to finding the captain and Chipp we stood up the coast, hoping to reach Barkin before dark.

"The condition of the party on this morning was very bad. Leach and Lauderback were disabled with swollen legs, the skin having broken in many places, and most of the others were badly off. We had been in the boat ninety-six hours and wet all the time. I had taken the precaution twice during that time to pull off my moccasins, to wring out my stockings and to rub my feet, in order to restore circulation. I advised the others to do the same, but the most of them unfortunately did not take the advice. I also beat the devil's tattoo almost all the time to keep up the circulation; so the next morning I was the best man in the party on my feet.

"After going to the northward about thirty minutes we saw two low points of swamp land, and it was evident that we were at the mouth of a swamp river. We had a talk, and I advised getting ashore as quickly as possible and drying our things out. So we entered this river with a leading wind, the current being very strong. We got as much as five fathoms in the middle of the river, but it shoaled very rapidly on either side of mid-channel. It was four or five miles wide, but we could not get within a mile of either beach. I advised standing up the river until noon, and then to decide fully what we should do. When that time arrived I said we were probably in a swamp river, about thirty or forty miles south of Barkin; the wind was east, and if we turned back we would have to beat out, but would have the current in our favor; after getting clear of the point we could run up the coast with a fair wind. 'But,' I added, 'if a gale comes on we will be in the breakers.' Melville then decided to turn back and start for Barkin.

"At this juncture Bartlett spoke up and said that he believed we were in the east branch of the Lena. Melville referred to me, and I said that it might be so, but that we should have higher land on our port hand if that were the case. The trend of the river corresponded pretty well with the coast outlet, and if we could find an island about thirty miles up

stream* it would, doubtless, prove that we were in that place. Bartlett said that he believed such a vast body of water could not be a swamp river; it was bigger than the Mississippi at its mouth. I still held to my belief that it was a swamp river, but said that it would be a good plan to try to make a landing before night.

"So we stood up stream and were fortunate enough to make a landing at seven P. M., in what we found afterward the Tunguses call an orasso, or summer hunting hut. We had been 108 hours in the boat since leaving Semenovski Island. The men immediately built a fire in the hut, and gathered round it before they had restored circulation by exercise. I knocked about outside and carried up my sleeping-bag before supper, so my blood was in good circulation before I went near the fire. We had a cup of tea and a morsel of pemmican, having been on quarter rations since we separated. We went to sleep with our feet toward the fire, and several of the men passed the night in agony, as if millions of needles were piercing their limbs. Bartlett described it as the worst night he ever past. I slept like a child and was very much refreshed next morning. We found fish-bones, reindeer-horns, and human foot-prints; also a curiously fashioned wooden reindeer with a boy mounted on his back. We were very much delighted with our prospects of meeting natives.

"Next morning we got under way about seven, steered up the river about two hours, and then could proceed no farther. Bartlett started out to reconnoitre, but when he was a hundred yards distant I saw that he was limping; so I ran after him and sent him back. I went about half a mile and saw several swamp-like rivers coming from the northwest; then went back to the boat and told Melville he had better prepare tea while Mansen and I took a more extended scout. We went farther, and Mansen used his eyes for me. I could see some high land about two miles off, and I asked Mansen to look well to see if he could get over to it, for I was sure deep water lay alongside of it. He thought he could trace a passage to it, all but in one small place; so we returned with that information. The land was about ten feet high and covered with good deer-moss. We saw many deer-tracks, especially where they had come down to water at the river; we also saw another hut close by on a small flat.

"We then went back to Melville, and soon after started out with the boat. We had splendid luck ; we struck a passage and reached the deep water. We passed an island, and I began to think that Bartlett was right. We proceeded at least thirty miles that afternoon, and at dark we reached a point about sixty feet high, where we expected the river to turn due south. Here we pitched the tents and passed the night.

"About four o'clock next morning Bartlett and I took a scout. We saw two large rivers to the northwest, and a broad river coming from the south. We thought we were at the right turning-point, but were not sure. At six I called Melville and the others and ordered tea cooked. The wind was fresh from the west and blowing right on the beach. We had breakfast, and then I took the well men and loaded the boat. We struck the tents at the last moment and assisted Melville and Leach into the boat, close-reefed the sail, and made every preparation for getting the boat off the lee shore. After some difficulty we succeeded in doing this, and ran close-hauled on the starboard tack under close-reefed sail, standing about south-southwest under the lee of a mud-flat. I was at the helm, and Bartlett on the bows with sounding-pole. We saw seven reindeer, but did not stop to get at them. About eleven we saw two huts on the west bank and in a good situation for landing ; so I recommended that we should get ashore and dry out everything.

"It was Sunday, September 18th, and was the first real day of rest that we had taken for a long time. We found two very nice summer hunting dwellings, built with sloping sides and shaped like the frustum of a pyramid, the sloping sides forming the cover for the occupants, and the aperture at the top being the chimney. This was what the Russians call a polotka and the Tunguses an orasso. The sun was bright and beautiful. We opened out everything to dry and passed a delightful Sunday, being sure that rescue was not far off. Newcomb made a good warm jacket out of his sleeping-bag. We also wrote a notice to the effect that the whale-boat had landed at this point, and stuck up a flag to mark the place of the record. There were lots of fish bones in the hut, some refuse fish, and a piece of black bread, all of which our Indian ate with avidity. There were also frames for nets and for drying fish.

"At eight A. M., on Monday, September 19th, we got under way again and stood up the river. I was at the helm and Bartlett on the bows, and the crew, divided into two watches of four each, taking two-hour tricks at the oars. Melville was in the stern sheets in command of the boat. We stood south for two hours with light wind and oars. All was going well, and we were in strong hopes of reaching a settlement marked on the chart before night; but we soon began to be headed off by mud-flats and sand-banks. About one A. M. we were more than a mile from the west bank, which we were following because the village was marked as on that side. We then saw a point of land, and I proposed to go ashore to set up the prismatic compass and get some bearings, as well as to prepare dinner.

"After two hours' work against a strong current we succeeded in reaching the shore, and the cook had set about getting fire when, to our surprise and delight, we saw three natives coming around the point in three dug-out canoes and pulling with double paddles. We immediately manned our boat and went to meet them, but they appeared shy and stood to the southward. We lay on our oars and held up some pemmican, and, finally, a handsome youth of about eighteen approached cautiously and took a piece. Then he called his two companions and they also came to us. We then induced them to go ashore with us to the old landing, where we built a fire and commenced preparing tea. One of the natives gave us a goose and a fish—all they had at the time. Their boats were very neat and well fitted with nets.

"I noticed that one of the strangers had a gray coat with a velvet color, and when I pointed to it inquiringly he said 'Bulun.' Then I pointed to his knife, or *bohaktah*, as he called it, and he also said 'Bulun.' From this I imagined that Bulun was the name of the place where they had obtained them. We had a very joyous time drinking tea and eating goose, for we felt that we were safe. The natives showed us all their hunting-gear, and we showed them the compass, the watch, and our rifles, much to their delight.

"After eating they crossed themselves, shook hands, and said '*Pashee bah.*' They also showed us their crosses, which they kissed; and I was very glad to have in my possession a certain talisman which had been sent to me by a Catholic

friend at San Francisco, with the message that it had been blessed by the priest, and I would be sure to be safe if I wore it. I did not have much faith in this, however, but I showed it to the natives, and they kissed it devoutly.

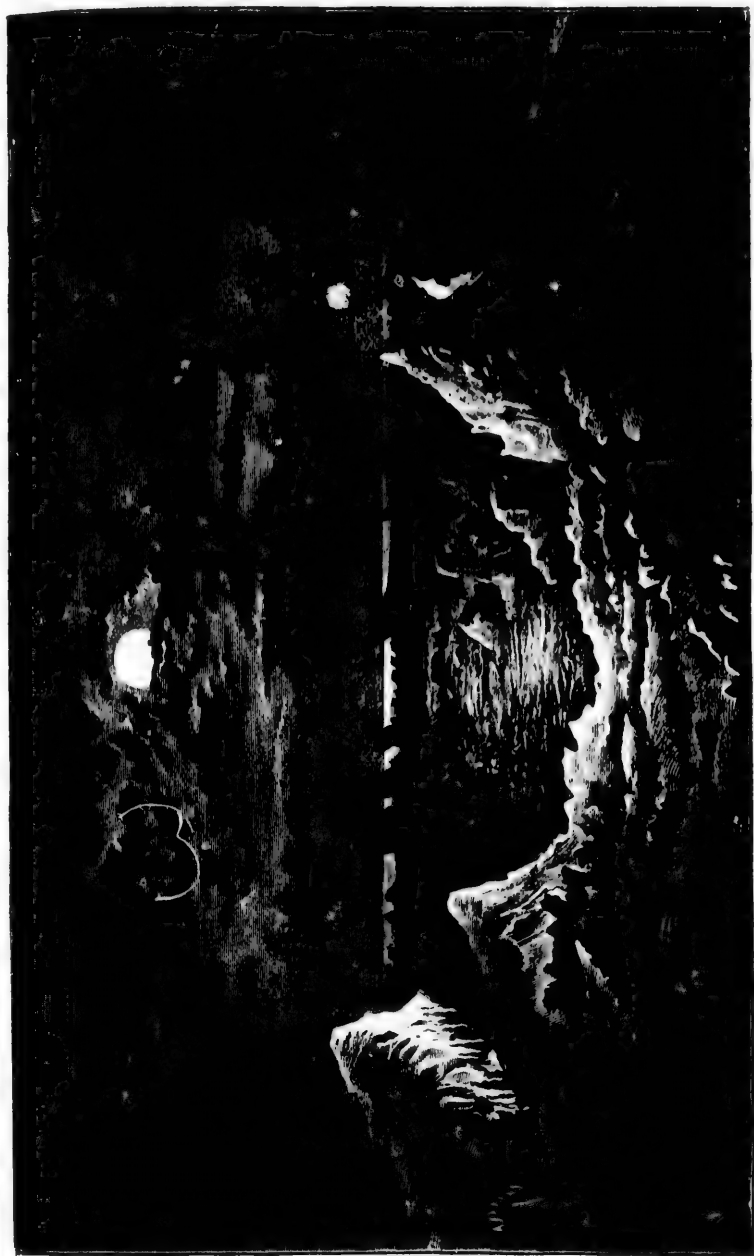
"It was the only article in the possession of the party, indeed, that indicated to the natives that we were Christians. You can imagine our feelings at meeting these people, for they were the first strangers whom we had seen for more than two years; and I never before felt so thankful to missionaries as I did on that day at finding that we were among Christian natives.

"We indicated to the three natives that we wanted to sleep, by making signs, and resting the head upon the hand and snoring. They understood us, and took us around the point where we had hauled our boats upon the sand beach, and then climbed a hill which was from sixty to seventy feet high. This was at the mouth of a small branch of the Lena, and we have since learned this to be on Cape Borchaya, said to be about eighty-five miles northwest of Cape Bykoffsky. There we found four houses and several storehouses, all deserted but one, which was in very good condition. There was a graveyard near by, with many crosses. We all lodged in the one house.

"The natives were very kind to us; they hauled their nets and brought us fish, parts of which they roasted before the fire, giving us the most delicate morsels. Some of the fish we boiled, and altogether we had a very enjoyable meal. Then I noticed that Caranie (one of the natives) had gone away, leaving only the youth, whom we called Tomat, and the invalid, whom we called Theodore. From Caranie's absence I argued that there must be other natives near by, and that Caranie had gone to inform them of our presence.

"Next morning, while the men were loading the boat, I took the compass and got some bearings of the sun for local time, direction of the wind, and general lay of the land. Previous to this I had interviewed Tomat, who drew a diagram on the sand showing the course of the river, and that the distance to Bulun was seven sleeps, which he indicated by snoring deeply when he pointed to each stopping place. He appeared perfectly willing to go with us as pilot to Bulun.

"On my return, Melville asked me to hurry up, as he wanted to get off. I was surprised, and asked where the other native



SCENE IN THE POLAR REGIONS—THE EDGE OF THE ICE-PACK.

was. Melville replied that he had left, having refused to go with us. I then asked him to wait a few minutes, while I ran back to the house in order to try and induce them to come. Returning, I found the youth Tomat on the housetop, looking very sad and bewildered. When I asked him to accompany us he replied, mournfully: 'Sok! Sok! Sok!' which meant 'No! No!' and then tried to explain something which I could not understand, saying: 'Kornado,' which I only afterward learned meant 'father.' I felt sorry for the youth, and gave him a colored silk handkerchief and one or two little things, and then went back to Melville.

"We then started out on our own hook and tried to work south (that is, towards Bulun) among the mud-flats; but in this we were not successful. At 5 P. M. we had a consultation, and I urged that we must decide at once whether to remain out all night or go back. I recommended going back and forcing the natives to go with us. We had two Remingtons and a shot-gun, and I knew that it would be easy to carry our point. Bartlett had been sounding from the bow, so I asked him if he knew the way back. He said yes, and we started to return. We did quite well until dark, but then the wind shifted and began to blow a gale. It was a very bad situation for a boat in such shallow water. We were fortunate enough, however, to get under the lee of a mud-bank, where we secured the boat, with three tent-poles driven into the mud and our line fast to them. Thus we rode all night. It was very cold, and some of the men got their feet and legs badly frostbitten. During the snow-squalls of the evening before I had to give the helm to Leach, because my glass would constantly get covered with snow and I could not see.

"At daylight I got Bartlett and Wilson to stand up in the boat and take a good look at the land. Bartlett said he could not recognize it, but Wilson was sure it was the place where we had first met the natives. Bartlett said that if we could weather a certain mud-flat we would have a fair way in; so we close-reefed, I took the helm, and went to windward of the mud-flat. Then we ran in with a leading wind and landed. Newcomb shot some sea-gulls, and we breakfasted on them in order to save our few remaining pounds of pemmican. Wilson insisted that in less than half an hour he could go to the house where we had slept the night before. Most of us laughed at him, but I told him and Mansen to go and see,

while I sent two men to reconnoitre in an opposite direction. Wilson and Mansen came back very soon. We were rejoiced to learn that they had seen the house.

"We immediately recalled our scouts and embarked, rounded the point, and were received at the old place by the natives in the most cordial manner. They were headed by another native, an old man, who took off his cap, and said 'Drasti! Drasti!' at the same time shaking hands. He immediately took possession of Melville, who was very lame, and helped him up to the house. We unloaded the boat, and carried up the sleeping-gear. When the natives saw a couple of gulls that we were expecting to feed on, they threw them down in disgust, and immediately brought deer-meat to replace them. Veo Wassili, for that was the old man's name, proved to be our great friend; he willingly consented to pilot us to Bulun, and measured the boat's draught, thus showing that he was wide awake and knew what he was about. This old Tunguse, Wassili, or Wassili Koolgiak, or 'Cut-eared Wassili,' in his style and bearing always reminded me of the late Commodore Foxhall A. Parker. He was always dignified and kindly, and had a certain refinement of manner that was very remarkable.

"We saw at once that Wassili was the man whom Caranie had gone to bring to us, and that was why the youth would not go with us until his father arrived.

"We took a good rest, and were all ready to start next morning with Wassili. Bartlett and myself asked to go ahead, in order to send succor from Bulun and also to spread the news about the two other boats; but Melville preferred that we should all keep together, for he probably did not feel that we were out of the scrape ourselves yet.

"On Wednesday morning, September 21st, Wassili, with two other natives, started with us, and pursued the same course that we had done on the previous forenoon to the southward and eastward among the mud-flats. He went ahead, and had his two men on the flanks constantly sounding with their paddles. Their boats, or *veatkas*, are about fifteen feet in length and twenty inches beam, modelled very much like a paper race-boat, and provided with a double paddle. The native faces the bow, pulling alternately with the right and left hand, the fulcrum of the lever being an imaginary point between the two hands. It is a very grace-

ful and fascinating movement, and the natives make their boats skim along very rapidly, sounding at each stroke when going in shoal water. Wassili found a channel among the mud-flats for our boats, which at this time drew about twenty-six inches. We worked all day to the southward and eastward, and about eight o'clock P. M. hauled out on a flat beach and camped for the night, Wassili giving us fish for supper. The weather was very cold and raw, with a strong breeze blowing, and our pilot was very anxious about the state of the river, fearing that we would be stopped by young ice at any moment.

"The next morning the banks were fringed with young ice, but this we broke our way through and continued our course up the river. After the sun came out, the ice melted, and we worked all day through a labyrinth of small streams, passing several hunting-lodges. At night we slept in two houses on shore, and next morning we entered a large body of water which we thought was the main river. About noon we reached a point of land on which there was a deserted village of about six well-built houses and a number of store-houses. Wassili took us to a house and told us to *couche*, or eat. I noticed that one of the natives went away in his canoe. I then took a look at the village. The houses were in good repair, and there were numerous troughs for feeding dogs, and cooking utensils in them. The doors were not locked, but those of the storehouses were well secured with heavy iron padlocks of peculiar shape.

"Things looked more promising now, and I felt sure that the winter occupants of these houses could not be far off. During this resting spell I examined Leach's and Lauderback's feet and limbs. Leach's toes had turned black, and Lauderback's legs were in a fearful condition, being greatly swollen and having large patches of skin broken. We dressed them as well as we could with some pain-extractor that I happened to have along, and when that gave out we used grease from the boat-box.

"In about an hour a boat appeared in sight, and a number of people disembarked and entered a house near us. A few minutes later, Wassili came and asked Melville and me to go with him. He conducted us to the house, where we shook hands with an old native named Spiridon, who had two very hard-looking women with him, each of whom had lost the

left eye. They served tea to us, however, in china cups; also gave us some reindeer tallow, which they considered a great delicacy. Spiridon looked to me like a regular old pirate, and there was an air of mystery about the place that made me tell Melville I thought Spiridon was an old rascal, and that I was afraid to trust him. He gave us a large goose, however, that was dressed and stuffed with seven other geese, all boned, and this he said we must not eat until sleeping-time on the following day. He also said that we would leave next morning. Newcomb had seen a number of ptarmigan flying about the deserted houses, and had bagged a few of these beautiful birds, which were in their white winter plumage, feathered from beak to toe.

"Then we started with a new pilot (Kapucan), a young man who lived with Spiridon. Old Wassili was quite exhausted, and he showed us his left elbow, where he had a severe gunshot wound, not yet healed. Caranie and Theodore still accompanied us, and the former proved to be a better pilot than the latter. We worked very hard that day until eight P. M., the men pulling all the time in one-hour tricks. I had the helm and Bartlett the sounding-poles. We camped for the night in a *palotka*, and when we got under way again the next morning only four of us were able to load the boat and get her off the beach.

"During the previous three days Leach and Lauderback had been working manfully at the oars whenever their turn came, although their limbs were in such a condition that they could not stand, and they had to be assisted to and from the boat. Melville and Bartlett were in a similar condition.

"About noon we reached the village of Geemovialocke (which we afterwards found to be on Cape Bykoffsky), where we were received cordially by about twelve men, women and children. Melville and I were taken to the house of a certain Nicolai Shagra, who was the chief.

"A few minutes later in dashed a slight young man whom we at once saw was a Russian, and I thought he was a Cossack. His name was Efim Kopiloff, a Russian exile who lived in this village, and he proved very useful to us later on. At this time he could say 'Bravo!' which he thought meant good, and that was the only word we had in common; but in less than two weeks he taught me so much Russian that I could make myself fully understood to him in a mixture of

Russian and Tunguse. We stayed at Nicolai's all night, and his wife gave us a fish supper, which we enjoyed heartily. We described as well as we could that three boats had been dispersed in a gale, and that we did not know where the other two boats were; also that we wanted to go to Bulun, which place he told us was fifteen days off.

"I need now to give you some explanation why we were at Cape Bykoffsky, so far out of our course to Bulun. Old Wassili, we understood at the time, was bound first of all to deliver us to the care of his chief, Nicolai Shagra, and with him we eventually found ourselves. The reason why they did not take us to Bulun, as they promised, is not very clear, even to me. It was a very unfortunate time in the season. Young ice was making during the night and breaking up and thawing during the day. It was the transition period between navigation and sledding. Nicolai Shagra told us it would take fifteen days to reach Bulun, but I think that he meant that a delay of fifteen days would be necessary before we started—that is, to await the freezing of the river. The next morning it was stormy, and he told us that we could not go; but about nine o'clock he came in and began to rush us off, as if he really intended to send us to Bulun. He put sixty fish in our boat, and made signs for us to hurry up and embark. We did so, and he, with three others, went ahead to pilot us through the mud-flats. Efim was in the boat with us.

"We worked up the river for about two hours, constantly getting aground, and, in the teeth of a fresh breeze, were making very slow progress. Before the village was out of sight, however, the pilots turned around and waved us back. We up helm and went back to the village, where they had a sled ready to carry Melville back to the house. About four of us secured the boat, but Nicolai insisted on hauling her up, for he made signs that she would be smashed by the young ice if we did not do so. The natives then assisted us, and we hauled her high and dry up on the beach. The condition of the men that day was such that I was not sorry that we had turned back, because they were not up to a fifteen days' journey as represented by the natives. We were then taken to the house of a certain Gabrillo Pashin, where we remained all night.

"Next morning Efim and Gabrillo came to me and made

signs that they wished me to go with them. They took me to an empty house at the end of the village, where I found some old women engaged in cleaning up. They indicated that they wished us to occupy it; so I had it cleaned out and moved the whole party into it about noon. Melville mustered the party and told them that he and I were afraid that scurvy had appeared among us, that we must keep the house and ourselves very clean, keep cheerful, and we could probably get along very well until proper food arrived. He also told them that I should take charge of everything during his sickness.

"The next morning all hands except Jack Cole, the Indian, and myself, were in a very bad condition, and we were the only persons who were able to get wood and water. Wilson was able to hobble about the house and prepare fish, of which we were given eight per day—four in the morning and four in the evening. Yaphem lived with us; so that made twelve men with four fish, weighing about ten pounds, for breakfast, and the same amount for supper. We had no salt, but we had a little tea left. After a few days the natives gave us some decayed wild geese for a midday meal; they were 'pretty high,' as an Englishman would call them, but we managed to stomach them, for we were capable of eating almost anything. Efim also gave us some goose eggs.

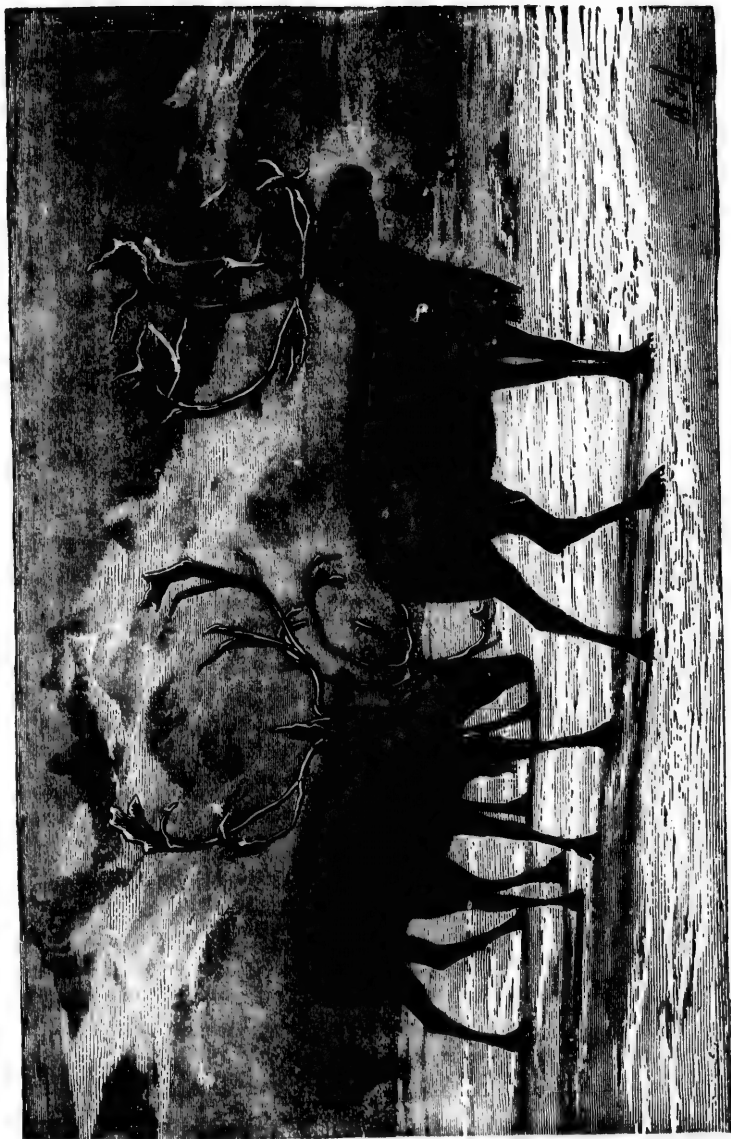
"Thus we lived for about a week. Then came an *orasnik*, or native feast-day, during which Efim took some of us out to make calls, when the natives presented us with fifteen other geese of a similar high character as the others. But our party improved in condition day by day; one by one reported himself as fit for duty, and in about a week's time Melville, too, was well enough to reassume charge informally. The natives were generous to us. I am not sure what their resources in fish were at the time, but I know they were not catching too many. One day I hauled the nets with Andruski Burgowansky; we drew seven nets and got only eleven *bulook*—a splendid fish, one of which he gave me as a present. There was a little deer-meat in the village at the time, but we were unable to get any.

"One day we were surprised by the arrival of a Russian at the village. I have forgotten to tell you that on the night after we got back the young ice formed on the river, and that sledding commenced in our vicinity about a week later. This

Russian was brought to our house, and I acted as interpreter as well as I could. Learning that he lived only nine or ten versts away, I asked him to take me home with him, as I wished to talk with him about our future movements and to learn the best route for getting to Bulun. To this he willingly consented, and at two in the afternoon we drove over to his house. With him and his wife, a Yakut woman, I spent the evening, and here I learned some news from the great world from which we had been so long absent. He told me that the Czar had been assassinated, that the *Lena* was still in the river, that Sibriakoff was running some steamboats, and also that Austria and Prussia had been at war. He spoke of Count Bismarck, of Generals Skobeleff and Gourko, and the Turkish war, and of a great many other things besides. His wife presented me with some tobacco, about five pounds of salt, a small bag of rye flour, some sugar, and two bricks of tea. And here let me say that the native women were always very kind, in spite of their ugliness.

"Next morning Kusmah Eremoff—for that was the name of this Russian exile—took me to the door and showed me a fine little reindeer which he had bought for us, and asked if it suited me. I told him it would be very welcome, and so it was immediately slaughtered. We had tea for breakfast, with fish and fish pâtés which the good woman had made especially for me; and just before I left Kusmah promised that on the following Sunday he would take me to Bulun with deer-teams. I asked him who else would go, and he said two other Russians. I asked how many Tunguses, and he said there would be none because they were bad; and on all occasions he tried to indicate that there was something wrong with the Tunguses. I asked him to come over the following Wednesday to consult with Melville, and then I returned home with the provender. Our people were delighted with the change of diet. The deer, when dressed, weighed ninety-three pounds.

"On Wednesday Kusmah came over as he had promised Melville. We took him down to the boat and had it turned over for his inspection. We then retired to an empty house, where Melville, Kusmah and I had a consultation. Kusmah said he could go to Bulun and return in five days. When asked if he could go quicker with or without me or Melville, he indicated that it made no difference. Melville decided that



THE REINDEER OF THE ARCTIC REGIONS.

Kusmah had better go alone. Kusmah acquiesced, but on the following Friday we were surprised to learn that he was going to take Nicolai Shagra with him. I have not mentioned that the second day after our return to the village, Nicolai came to us and wanted a written paper from us, which he promised to forward to Bulun at the earliest opportunity. I wrote a paper in English and French, which Wilson put into Swedish, and Lauderback into German; and all four versions of this document, together with a picture of the ship and a drawing of the American flag, were sewed up in oil-skin and given to Nicolai, who handed them to his wife, and that good woman put them into her cupboard for safe-keeping. They were never forwarded. Subsequently Melville and I prepared despatches for the Minister at St. Petersburg, for the Secretary of the Navy, and for Mr. James Gordon Bennett; but Melville sent nothing by Kusmah.

"The day after we arrived it was decided that I should go to Bulun, as I was in the best physical condition and the most available person. For more than two weeks my projected trip was talked about by us and by the men. I was to bring back food and deer sleds for the whole party, and also to take the despatches which we had prepared. After my return from Kusmah's house, however, Melville decided that Kusmah should go alone, and as he promised to be back in five days he decided not to send any despatches by him, but to take them himself. He seemed to think that Kusmah ought to get there and back quicker if he went alone, and was very much disappointed when he learned that Nicolai Shagra went with him.

"This man Kusmah was a robber, who had been exiled there and was dependent upon the natives in a great measure. He could not leave his home without official permission; but he took the responsibility in this emergency, and evidently had to have somebody to back him and to assist him as a witness, and he therefore, very naturally, took with him the chief of the natives, though he first proposed to take me. He said that it made no difference in time if one should accompany him.

"The next morning I told Melville that before Kusmah left he should be particularly enjoined to spread the news of the two missing boats among the natives everywhere he went, and I said I would like to run over to his house to give him

those orders. Melville consented. I went down to Nicolai Shagra's to get a dog team, and while there Spiridon hove in sight with a fine team of nine dogs. I immediately took possession of him and his team, and drove over to Kusmah's house, where I had a long interview, during which I went over the charts with him again. On this occasion he told me positively that Barkin was only fifty versts northeast of his house, and I immediately determined to go there to seek for traces of the missing boats. I went back to Melville and told him what I wanted to do. He did not assent to the proposal at first, but finally agreed. While at Kusmah's I wrote a line to my brother in Washington, and gave it to Kusmah to mail at Bulun. My eye would not permit writing much.

"I took my rifle and sleeping-bag, put them on Spiridon's sled, and pointed toward his village. He seemed very much astonished, but finally obeyed, and started homeward. On reaching his house I had a consultation with him and Caranie, and tried to get them to consent to take me to Barkin next morning. But they said that the *boos-byral*—that is, posh-ice—would prevent them from going, and that it was impossible to go there at that time of the year. We then had supper, after which I hunted up old Cut-eared Wassili, and he consented to take me to Kahoomah, which Kapucan said was to the northwest of us. If I could not go to Barkin, I was glad at any rate to go to the northwest to search in that quarter and to spread the news.

"The next morning Wassili, Kapucan, and I started with twelve dogs for Kahoomah. We first went down a little river to the southeast, and the young ice broke in many places, letting the dogs and sled into the shallow water. I was surprised at the southeast course, for Kapucan had told me that Kahoomah was to the northwest. After thinking a few moments I concluded that Kahoomah must be the Tunguse name for Kusmah, and that surmise proved to be correct. They took me back to Kusmah's house, where they had another talk, and then agreed to try to take me to Barkin. I set up the compass, and Kusmah pointed to the northeast, saying that Barkin was only fifty versts distant in that direction, but that we would have to go first to the southeast and then swing round to the northward.

"We had to wait all night for another sled from our village.

It came next morning, and then we started to the southeast. About eleven o'clock we came to a big river running north, and I noticed that old Wassili looked up the stream very anxiously and thoughtfully. I set up the compass, and when the needle came to rest the natives sung out with delight and surprise, 'Tahraho,' and pointed toward the south end of the needle. I insisted, however, on going north, but the old man said it was impossible, on account of *boos-byral* or posh-ice. I then decided to let him follow his intentions and see what they were.

"About 4 P. M., after having travelled over a region covered with driftwood, we reached a small hut situated near a bold headland, and the island that they call Tahraho was about three miles off shore. They said they would take me there the next morning. At this time another sled hove in sight; it was driven by an old man named Dimitrius, who had been sent after us by Kusmah, with a kettle and a tea-pot for me. Wassili and I went upon the hill about sunset, and had a good view of the river and the adjacent island. He indicated that the steamer *Lena* had entered there, and that there might be some signs of boats on the adjacent islands; but I told him that I wanted to go round the headland and to the northward. But both old men insisted that this would be impossible.

"The next morning, to satisfy me, they started toward the island, the two old men and myself going in advance, to test the young ice. About a mile off shore the ice was black and treacherous, and so unsafe that the old men refused to go any farther. So we had to turn back and return from a fruitless search. It demonstrated, however, that what the natives said was true—that the ice was not strong enough for travelling. The second night we slept at Kusmah's, and then returned to Geemovialocke.

"At the end of five days Kusmah had not returned, and it was not until October 29th that he put in an appearance, after an absence of thirteen days. On his way back, at Kusmah Surka, he had, however, met with the two men of the captain's party, Noros and Nindemann, who had written a brief statement about the condition of the captain's party. They gave it to Kusmah, and he hastened to bring it to us. He told us that the men were to have reached Bulun the previous day (October 28th); so Melville immediately

started with old Wassili and dog teams, to find the men and learn the position of the captain's party and carry food to them. He gave me orders, which he afterward put in writing, to take charge of the party and get it to Bulun as soon as possible.

"On November 1st, the Bulun commandant, a Cossack, named Gregory Miketereff Baishoff, came to us with a good supply of bread, deer-meat, and tea. He handed me a long document addressed to the American Minister at St. Petersburg, and signed by Noros and Nindemann. It contained some details of the captain's position, but was not definite enough to allow me to start immediately to their relief. Besides, I knew that Kumak Surka was nearer to Bulun than to us, and that Melville, after seeing the men, could get to the captain much quicker than we could; so I immediately despatched the document to Melville, by special courier James H. Bartlett, fireman, who was the best man of the party at that time. The commandant at the same time had the foresight to appoint a rendezvous at which he and I should meet Melville on his way north. He also sent a letter to a subordinate, ordering him to equip Melville for the journey. This man was a non-commissioned officer of Cossacks, and he acted with great intelligence and good judgment. He was a tall, fine-looking man, with black side whiskers, forty-two years of age.

"Bartlett started that night with a deer team, and was likely to get to Bulun only a few hours after Melville, because the latter had taken the dog road, which was 240 versts long, while the deer road was only eighty versts across country. The commandant had come by the deer road, thus missing Melville. I told the commandant that he must get us to Bulun as soon as possible, but he was rather non-committal, and would not state a definite time for starting.

"That night I slept uneasily and was awake by four o'clock next morning. Efim was up, and I asked him where he was going. He said that he was going with the commandant to Arrhue, the village where Spiridon and Wassili lived. I told him to tell the commandant to come to me immediately. I thought I would try a high-handed game with this Cossack commandant, and it worked admirably. He came to me about five A. M., in uniform, and I told him that if he did not get us clothed and started by daylight next morning

I would report him to General Tchernieff and have him punished; but that if he did well and got us ready he would be handsomely rewarded. He accepted the situation gravely and said 'Karascho,' which meant 'all right.' I invited him to sleep with us the next night; and the next morning, at daylight, fourteen dog teams, with about two hundred dogs, were assembled at our village, and the natives brought us an ample supply of skin clothing. This was Thursday, November 3d.

"We started for Bulun, and on Saturday met Melville at Kumak Surka Serai, which is the first deer station. I had a long consultation with him, and he told me that there was no possible hope for the captain's party, but that he and the two natives were going to the spot where Noros and Nindemann had left him, and also to the Arctic Ocean to look for relics. He told me, further, that he had left written orders at Bulun for me to proceed to Yakutsk with the whole party. I will here state that his orders to me were given by virtue of a written order from Lieutenant DeLong which placed him in command of my boat, and all persons embarked in the boat were made subject to Melville's orders and directions. This I knew to be unlawful; but, as the captain was the highest naval authority at the time, I had nothing to do but to obey. And so I had accepted duty under Melville from the time of the separation, because I considered that it was my duty, under the circumstances, to do so.

"We arrived at Bulun on Sunday, and the commandant informed me that we must remain until the following Saturday. I found written orders from Melville telling me to proceed to Yakutsk with the whole party as soon as possible, and there await his arrival; but he told me verbally at Kumak Surka Serai to leave Bartlett at Bulun.

"As transportation farther south could be provided for only six of the party, I took the five weakest men and started for Verkhoyansk, leaving the other six to follow when Melville should return. I left written orders with Bartlett to start a search party out for Melville in case he did not return by November 20th. The resources of Bulun were very limited, it being only a village of about twenty houses; and our presence there made fearful inroads on their winter stock. We travelled by deer sled to Verkhoyansk, a distance of 900 versts. Thence to Yakutsk by means of deer, oxen and

horses, a distance of 960 versts, reaching the latter place December 17th, 1881, where we were well taken care of by General Tchernieff, the governor. About December 30th Melville arrived at Yakutsk, and soon afterward the other six men came on. On New Year's day the thirteen survivors of the Jeannette were all present at Yakutsk. The most of us were in good condition, but my left eye was completely disabled, and the right one was suffering by sympathy. One man was insane and had to be kept under restraint, and Leach was disabled slightly with frozen feet.

"Melville started north from Yakutsk January 27th, taking with him Bartlett and Nindemann—Nindemann because he was one of the men who had last seen the captain, and Bartlett because he had picked up a little Russian and could get along first rate with the natives. Most of the men would have been worse than useless, because they could not have made themselves understood, and would have had to be waited on by the natives.

"At Yakutsk Melville received the first despatch from the Secretary of the Navy, which ordered him to send the sick and frozen to a milder climate. So he ordered me to proceed with the whole party to Irkutsk, and thence to the Atlantic seaboard. At Irkutsk I received despatches from the department ordering me to remain and continue the search, but I was quite unable to do so. After the long excitement of our life in the north my eyes began to trouble me more and more, and having got cold in them during the sledge journey from Yakutsk to Irkutsk, I was compelled to seek professional advice. The two oculists whom I consulted told me that my left eye was ruined and should be taken out to prevent the right one from being constantly affected; that I should not read or write, and should not leave here until the right eye was in a better condition. The reports of the oculists about my right eye were at first very encouraging, and that was why I proposed to the department to charter the steamer *Lena*, in order to make a spring search for Chipp. I also asked for two officers to be sent to assist, thinking that if my right eye broke down there would then be somebody here to take my place.

"Melville told me every detail of his trip of twenty-three days from Bulun. He says he has traced the captain's party as far as a summer hunting station called Sisteranek, on the

west bank of the Lena, and that the party must be somewhere between that station and Bulcour, neither of which places is marked on the ordinary map. They had been two days without food when Noros and Nindemann left them, and the region is devoid of game and inhabitants. The men had insufficient clothing, and there is no reasonable hope.

"I think Chipp's boat swamped during the gale, for she nearly did so on a previous occasion, and was a very bad sea boat. If he succeeded in reaching the coast he had less food than the other boats, and his chances of life were therefore worse than the captain's party. If his boat swamped she would probably come to the surface after the bodies floated out; she had not sufficient weight in her to keep her down. The specific gravity of pemmican is nearly that of water, and we found that some of the canisters, which probably contained air space, would actually float. The sleeping-bags, when water soaked, would be the heaviest weight in the boat, and these were probably thrown overboard in the gale. The northeast winds continued two days after the gale, and Chipp's boat may have drifted ashore near the mouth of the Olenek, if not carried to the northeast as the driftwood seems to be—that is, to the New Siberian Islands."

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CHAPTER XVIII.

RELIEF EXPEDITIONS FOR THE JEANNETTE.

First Cruise of the Corwin, 1880—Search for missing Whalers and the Jeannette—Kings Island—Wrangell and Herald Land in Sight—Second Cruise of the Corwin, 1881—Plover Bay—Exploring Wrangell Land—Search-Expedition of the Rodgers—The Ship Burned—Expedition of the United States Steamer Alliance to Hammerfest and Spitzbergen—No Tidings of the Jeannette.

WHEN the North Pacific whaling fleet of 1879 had returned from their cruise later than usual, without bringing any word of the Jeannette, and it was further learned that two of their number, the Mount Wollaston and the Vigilant, had not been seen later than October 10th, and then in the same region where the Jeannette had been last seen, much anxiety began to be felt for the ships. In the following month of May the Revenue Steamer Corwin, Captain C. L. Hooper, was ordered to proceed from San Francisco on a cruise in the waters of Alaska, and to afford assistance to the ships if they should be fallen in with. The Corwin arrived at Ounalaska after a rough passage of twelve days, sailing from which port June 8th, and touching at St. Paul's, lat. $57^{\circ} 5'$, long. $169^{\circ} 51'$, she shaped her course for Cape Romanzoff, and at daylight of the 11th first struck the ice north of Kounivak Island, lat. 60° N., long. 160° W. The heavy pitching and grinding along the edge of the pack made it unsafe to attempt to force the way, and the Corwin anchored in a fair harbor until the going down of the gale on the 13th. After working about twenty miles through leads, picked out from time to time, on the 15th Captain Hooper found himself utterly helpless, drifting with the pack southward and eastward about two miles per hour. At 8 A. M. he was in only five fathoms of water among grounded ice, which gave the vessel sharp nips, trying her strength. At one time the Corwin was lifted up bodily several feet, and held suspended for some minutes; coming in contact with one, "stern on," the rudder was forced over, the screw steering gear carried away, and the wheel

chains parted. Happily the rudder stock, which was of the best Oregon oak, stood the strain, although for a time it seemed as if nothing could save it. On the 16th the ship continued to drift helplessly all day.

On the 17th a sharp northeast gale broke up the ice and started it off shore, allowing the *Corwin* to proceed towards Norton Sound and St. Michael's, where she was again detained several days.



IN A "LEAD" IN AN ARCTIC ICE-FIELD.

On the 28th the *Corwin* entered the Arctic Sea; on the 30th she made two whalers, one of which had communicated with the natives at Point Hope, but could learn no good tidings there. Following the ice-pack around from Cape Serdze Kamen, she learned from the natives and whalers without exception that in their opinion nothing would ever be heard of the Mount Wollaston or the *Vigilant*. They were reported as last seen by Captain Bauldry of the *Helen Mar*

of New Bedford, forty miles southeast of Herald Island, with clear water at the time to the northward, in which direction they were steering.

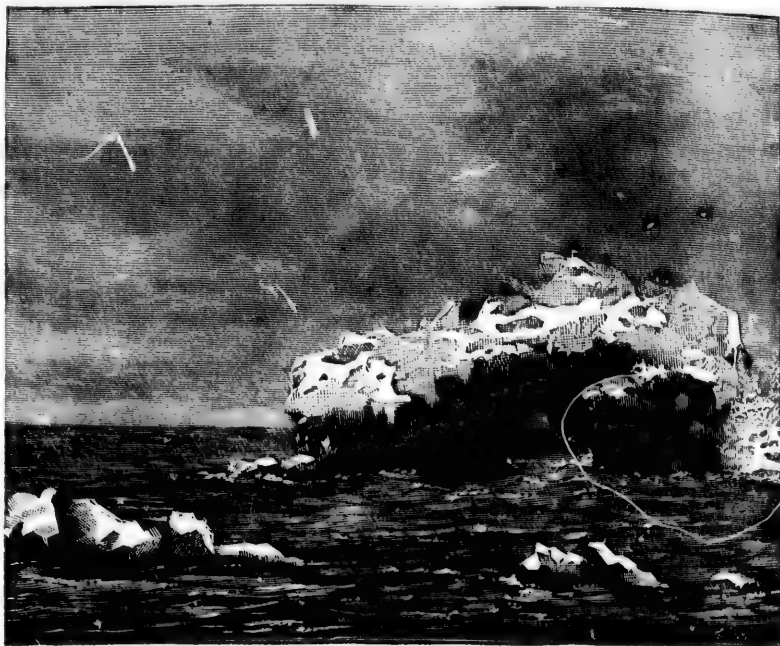
During his cruise in the Arctic Ocean, Captain Hooper visited Kings Island, Capes Prince of Wales, Espenberg, and Lisburne; saw Herald Island and Wrangell Land from a distance, and after experiencing many trials and hardships returned to San Francisco. Here the *Corwin* was greatly strengthened and fitted out for another cruise in the Arctic Ocean.

On the 4th day of May, 1881, the *Corwin* set out on her second cruise, and after a stormy voyage arrived at Ounalaska on the 18th. Sailing from Ounalaska May 22d, the ship reached St. Paul's the day following, finding there as at Ounalaska that the preceding winter had been mild and the snow light. The thermometer had but once registered below zero. On the 24th, in lat. $58^{\circ} 43' N.$, long. $171^{\circ} 26' E.$, the temperature of the water fell to 32° , and ice was sighted from the deck. On the 27th she was at the mouth of Anadir Gulf, the wind blowing hard from the northward with a short heavy sea running; the course was shaped for St. Lawrence Island, which was found covered with snow and almost surrounded by ice. As soon as the vessel was made fast, a general rush was made for the shore, each trying to be the first to land. The rim of ice was probably one thousand feet in width, and full of hollows and hummocks, but after many falls, with some narrow escapes from going into the deep crevices which run through it in various directions, the shore was reached, and a general scramble up the almost perpendicular rocks followed. While this was being done, Professor Muir, an experienced mountaineer, came over the ice with an axe in his hand, and reaching the island a few hundred feet farther north, opposite a bank of frozen snow and ice one hundred feet high and standing at an angle of fifty degrees, commenced cutting steps, and ascended the ice cliff, the top of which he soon reached without apparent difficulty; and from this the summit of the island was gained by a gradual ascent neither difficult nor dangerous.

Another party making the attempt for an ascent through a small steep ravine up which they climbed, succeeded after several narrow escapes from falling rocks, in reaching the top of the ravine, but then found that their ascent was

scarcely begun, for above them was a plain surface of nearly a thousand feet high, and so steep that the rock which covered it at the slightest touch came thundering to the bottom. Hooper had now to interpose his authority, and order a retreat for the safety of this party whose descent was made, one at a time, the upper ones remaining quiet till the lower ones were out of danger.

The top of the island, ordinarily inaccessible, under the



A WAVE-WORN ICEBERG.

skilful guidance of Professor Muir, had been thus reached by a large party, and everywhere carefully searched for traces of the Jeannette and missing whalers. All prominent points were carefully examined for cairns, but none were found, or anything which would indicate that the island had ever before been visited by human beings.

From Kolintchin Island a sledge party, consisting of First-Lieutenant Herring, Third-Lieutenant Reynolds, Coxswain Gessler, and two natives, with twenty-five dogs, four sleds, one skin-boat, one tent, and well supplied with blankets, pro-

visions, arms, and furs, was sent out, with orders to return to Cape Serdze Kamen. They were absent twenty-eight days, but did not hear any news of the Jeannette.

On July 30th Herald Island was sighted by the Corwin, and soon Captain Hooper effected a landing. The exploration now made is the first in the history of this island.

From the summit a good view was offered of Wrangell Land, the magnetic bearing of its extremity being given by Professor Muir as south 40° ; west and south 70° ; west or south $62^{\circ} 26'$; west and north $86^{\circ} 34'$ N. (true). The contour of the eastern end of the land was clearly defined as about forty miles distant, but farther away, on its north side, a blue line appeared above the horizon which Muir supposed to be land extending in that direction. To the party who reached the summit, all sense of fatigue vanished, for the midnight sun was shining with gleaming splendor, coloring all the waste of the ice, sea, and granite.

While the exploration on the island was going on, the Corwin steamed around to the north side in a clear lead between the grounded and the drift-ice, and made an examination of the shore line. At 2.30 A. M., all hands having returned to the vessel, she cast off from the ground-ice and steamed through the drift, toward clear water, which was reached about 6.30 A. M. The Corwin was also the first to land here; the first of explorers to approach, indeed, very near this island, the bearings of which were afterward so fully determined by Lieutenant Berry, U. S. N., of the Rodgers.

From this first exploration of Wrangell Land, Captain Hooper crossed over to Point Barrow, where he found a part of the crew of the whaler Daniel Webster, whose captain, not having been familiar with Arctic navigation, had remained in a lead just half an hour, long enough to have his ship crushed. Nine of the crew who had escaped to the shore were taken aboard the Corwin, others having gone overland to Icy Cape.

August 24th, the cutter had again made a distance of 600 miles, arriving in Plover Bay, where was found the Golden Fleece, with Lieutenant Ray, of the U. S. A. Signal Service, on his way to establish a meteorological station at Point Barrow.

On the 27th the Corwin sailed to the northward, and soon

after again sighted the blue peaks of Wrangell Land, standing along the ice-pack from which she neared Herald Island, but, in a fierce gale that lasted several days, lost her iron ice-breaker, and, as the oak sheathing which had protected the soft Oregon plank around her bows was also entirely gone, the captain could not again venture into the ice. After cruising eastward into the vicinity of Kotzebue Sound and Hotham Inlet, and at St. Michaels receiving on board a second party of shipwrecked men, the cutter went on her way to San Francisco, where she arrived October 21st, 1881.

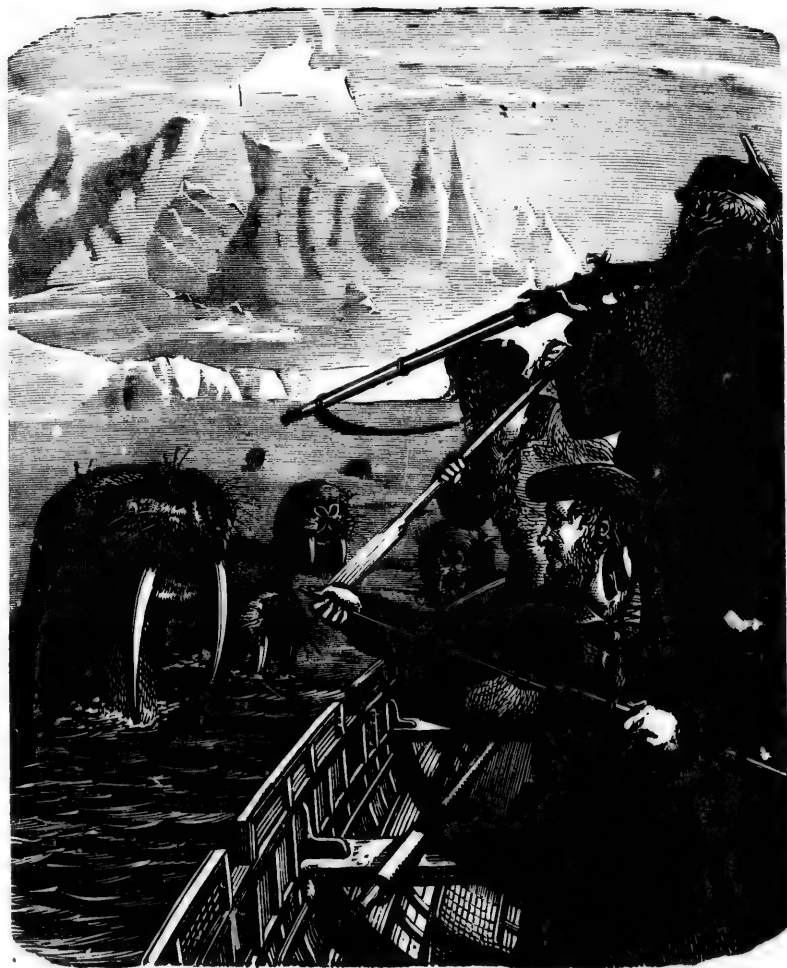
On the 16th day of June, 1881, the steamship Rodgers, Captain Berry, formerly the Helen and Mary, started from San Francisco on a cruise for the Jeannette. In addition to the very large amount of stores and pemmican purchased from the remainder of the Jeannette search expedition appropriation, the ship had received three years' full navy rations, ample for thirty-five officers and men for five years. The Rodgers safely arrived at Wrangell Island a second time on September 22d, and on September 27th Captain Berry turned south for winter-quarters, and arrived at St. Lawrence Bay on the 16th day of October. The preparations for the winter were unfortunately kept back by continued bad weather, which prevented the transfer to the shore of a large part of the provisions and supplies.

November 20th, Ensign Hunt started up the coast with a dog-team, to visit the camp of Master Putnam, but was compelled by severe storms to return to the ship. In the morning of November 30th, the startling cry of fire was heard on board the Rodgers, issuing from the hold, which was so closely filled with stores that it was next to impossible to get water into it. By 4 P. M. some of these had been secured, the men working in the smoke and carbonic acid gas below decks; the boats being loaded, the ship was abandoned at midnight. She drifted up the bay, rigging and sails on fire, and her magazine exploded in the early morning. The cause of the fire could not be learned; it was probably from spontaneous combustion, or from the firing of the deck underneath from the donkey-boiler.

In a camp formed of overturned boats, sails and tents, officers and crew found a shelter from a violent snow-storm; next morning a party of natives from the village Noomamoo, seven miles off, came to offer a hospitable refuge in their huts,

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and the party, after a fatiguing tramp, were distributed among the eleven homes which made the settlement, making the uncomfortable exchange of ship life to a winter's siege on walrus and blubber. Afterward the officers and crew were



ATTACKED BY WALRUS.

divided into four parties, and scattered in three other villages within a radius of twenty miles.

Natives communicating the news of the burning of the ship to Putnam, he started south with four loaded sledges for their

relief, meeting Lieutenant Berry, who was on his way to Master Putnam's camp. The latter had been left near Cape Serdze, to explore the coast in search of the Jeannette. Continuing his trip under orders, he delivered his provisions on January 4th, and on the 10th started on his return accompanied by Hunt, Zane, Castillo, and three natives, driving his own team of nine dogs. In an attempt to face a heavy gale, probably not having the ability to control the dogs, or not being aware of the abrupt deviation from the course taken by the other sleds, he missed his way in crossing the bay and drifted out to sea on an ice-floe. An immediate hunt which was entreated of the natives, was not permitted that night by the violence of the gale, and the wind unhappily detached the ice from the shore, and carried it to sea; next morning all was clear water. On the 14th and on the 17th the search was renewed along the shore thirty miles, but no good news was heard; on the 29th it was learned that six of the dogs had come ashore without harness, one of them with a pistol-shot wound in his neck, given probably by Putnam, who intended to use it for food, had he succeeded in escaping. He was seen three days afterward, being carried out to sea, but an earnest effort to reach him in a canoe failed, the ice cutting through the boat. How long he survived can never be known; the temperature was from twenty to forty degrees below zero, and he had no protection from the fierce winds, except his warm clothing. His death was either from the cold, want of food, or from the breaking up of the floe. A month's search on the shore made by Waring and Stoney revealed nothing more of one of the most promising officers of the expedition.

In the meantime, February 8th, Lieutenant Berry, as yet unacquainted with this sad disaster, left Cape Serdze with Hunt to follow the coast westward in search of the missing crews; arriving at the Russian post of Nishne March 24th, he learned of the landing of part of the Jeannette's crew at the mouth of the Lena, and continued his journey, overtaking Chief Engineer Melville's search party, and proceeding to Yakutsk. Berry intended to fit out a new expedition, but on learning that Lieutenant Harber had been ordered by Secretary Chandler to make a summer search, he returned home, and Hunt joined Harber.

The party from the Rodgers left on shore at St. Lawrence

Bay, under Master Waring, U. S. N., was received on board the whaling barque North Star, Captain L. C. Owens, of New Bedford, May 8th. The captain, having heard of the party by a letter which Waring had intrusted to the natives for any passing whaling vessel, had forced his ship through the opposite ice for their rescue. On their way to Ounalaska, falling in with the revenue cutter Corwin, the Rodgers party were transferred to her, arriving in San Francisco June 23d, 1882.

Another expedition in search of the Jeannette was sent out by the United States government, under Commanders Cooper and Wadleigh. The United States screw-steamer Alliance left Hampton Roads June 16th, 1881, and anchored in the harbor of Hammerfest, Norway, July 24th.

August 27th the Alliance left Spitzbergen, and cruised under sail until September 11th to Hammerfest, after which she succeeded in getting again as far north as $79^{\circ} 3' 36''$. The ice and the weather showed Commander Wadleigh that it would be unsafe to attempt to reach Cape Brewster. September 25th, under the instructions of the department as already named, he began his return, arriving at Reykiavik, October 10th, Halifax, Nova Scotia, November 1st, and New York, on the 11th. While at Reykiavik he received news from Governor Finssen of the stranding and wreck of a merchant vessel of 1,200 tons, June 26th, 1881, on the rocks just outside of Thorshaven. The governmental examination which had been made of this ship had found upon it the inscription Jamestown, Boston, Mass. There was, however, no information offered to Commander Wadleigh, indicating in any manner the slightest knowledge or rumor of the Jeannette.

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CHAPTER XIX.

METEOROLOGICAL STATIONS IN THE POLAR REGIONS.

An International Congress—Stations Recommended by the Polar Commission—The Instructions of the Officers in Command of these Expeditions—Preliminary Expedition of the schooner *Florence*—Valuable Scientific Observations.

IN September, 1875, the late Lieutenant Carl Weyprecht, one of the commanders of the Arctic expedition in the ill-fated *Tegetthoff* and the discoverer of Franz Joseph's Land, first made the proposition, that the world should unite in one uniform system of magnetic and meteorological observations at as many stations as possible, as well in the Arctic as in the Antarctic regions. These results were to be compared with those to be obtained in the temperate zones. The establishment of an official Polar Commission was the result, all the members of which were clothed with authority by their respective governments. This commission recommended that the following stations should be occupied by observers, to be appointed by the respective governments:

By the United States, Lady Franklin Bay, Grinnell Land, N. lat. $81^{\circ} 44'$, W. long. $64^{\circ} 30'$, and Ooglaamie, near Point Barrow, Alaska, N. $71^{\circ} 18'$ lat., long. W. $156^{\circ} 24'$; by Austro-Hungary, Jan Mayen, lat. N. $70^{\circ} 58'$, long. $8^{\circ} 35'$, and Pola, lat. N. $70^{\circ} 52'$, E. long. $13^{\circ} 51'$; by Denmark, Godthaab, lat. $64^{\circ} 10'$, W. long. $51^{\circ} 45'$; by Finland, Soudan Kyla, lat. N. $67^{\circ} 24'$, E. long. $26^{\circ} 36'$; by France, Cape Horn, lat. S. $56^{\circ} 00'$, W. long. $67^{\circ} 00'$; by Germany, South Georgia Island, S. lat. $54^{\circ} 30'$, W. long. $38^{\circ} 00'$, and Kingawa, N. lat. $67^{\circ} 30'$, W. long. $67^{\circ} 30'$ (Hogarth Inlet, Cumberland Sound); by Great Britain and Canada, Fort Rae or Fort Simpson, on Great Slave Lake, N. lat. $62^{\circ} 30'$, W. long. $115^{\circ} 40'$, and Toronto, where observations will be made by Canada, N. lat. $43^{\circ} 39'$, W. long. $79^{\circ} 23'$; by Holland, Dickson Haven, or Port Dickson, N. lat. $73^{\circ} 30'$, E. long. $82^{\circ} 00'$; by Italy, Punta Arenas, Patagonia, S. lat. $53^{\circ} 10'$, W. long. $70^{\circ} 55'$; by Russia, Nova Zembla (Karmakule Bay), N. lat. $72^{\circ} 30'$, E. long. $53^{\circ} 00'$, and

Mouth of the Lena, N. lat. $73^{\circ} 00'$, E. long. $124^{\circ} 40'$; by Sweden, Spitzbergen, N. lat. $79^{\circ} 53'$, E. long. $16^{\circ} 00'$; by the Argentine Republic, steps have been taken to establish a magnetic observatory at Cordoba, S. lat. $31^{\circ} 30'$, W. long. $64^{\circ} 30'$. A number of "Auxiliary Stations" were also proposed.

In addition to the two stations named above for Russia, the Geographical Society of that country proposed to maintain seven special meteorological stations in Siberia. The United States Signal Officer reported in 1882 that the following named countries were co-operating with the United States in the work of Polar research: Germany at Pendulum Island, North Atlantic, and South Georgian Island, in the Antarctic Ocean; England and Canada, Russia, Austria, France, Holland, Finland, Norway and Sweden, and Denmark.

The Bulletin of the Geographical Society of Paris (*Premier Trimestre*, 1883) reviews the proposed plan of work, and locates the observers as follows: The United States, at the points before named; England, at Fort Rae, Great Slave Lake, $62^{\circ} 30'$ N.; Germany, on Cumberland Gulf, $66^{\circ} 30'$ N.; Denmark, at Godhavn, Greenland, $64^{\circ} 10'$ N.; Austria, at Jan Mayen, between Norway and Greenland, $70^{\circ} 58'$; Sweden, on Mosoel Bay, Spitzbergen, $79^{\circ} 53'$ N.; Norway, at Bossekop, the north cape of Finmark, $69^{\circ} 56'$ N.; Holland, at Dicksonhaven, the mouth of the Yenesei, $73^{\circ} 20'$ N.; Russia, at Sokandyla, Finland, $67^{\circ} 24'$ N., at Karmakule Bay, north coast of Nova Zembla, $72^{\circ} 30'$, and at Cape Borchaya, on the east of the Lena Delta, 73° N. For these stations the following moneys have been contributed, chiefly by national appropriations: For the two parties in the United States, \$100,000; for the English, \$33,000; for the Danish, \$40,000; for the Austrians, by Count Wibczek exclusively, \$40,000; for the Swedish, \$16,000; for the Holland observations, \$13,000; for Norway, \$8,000; for Russia, \$90,000; for France, at Cape Horn, \$60,000; for the German observations at the Georgian Islands, \$36,000; for observations by Italy and the Argentine Republic at the South Shetland Islands, \$16,000.

"If we add to all these stations those already existing in Russia, Siberia, Alaska, the English Provinces of the North, etc., it will be seen that around the whole Polar Circle will be a zone of observatories, whose observations will form the study of the globe to the eightieth degree of north latitude;

while in the southern hemisphere England has a meteorological observatory in the Falkland Islands. . . . The larger number of the civilized nations are striving by scientific means to wrest the mysterious secrets of the deep from their hidden recesses of the North."

At the date of the issue by the United States Signal Service, Washington, of the "Memoranda" from which some of these notes of the stations are cited, it is stated by General Hazen, that since the organization of the International Commission other nations have enlisted in the work; the observing parties have all been despatched to their respective destinations, and they now are actually engaged in the contemplated observations. The stations will be occupied for at least one, and, in some cases, for three years, and may be divided into two classes, namely: (1.) The special polar stations within thirty degrees of the north or south pole; and, (2.) The auxiliary stations, which are spread over the rest of the habitable globe. Besides these land stations, observations made on shipboard are extensively called for, and it is hoped that enough observations will be accumulated to allow the making of a complete map of the weather, and of the magnetic disturbances throughout the whole globe, for any moment of time during the period in question. In addition to the main work of these international stations, all possible attention will be given to numerous collateral subjects. Thirteen nations have thus far entered heartily into the project; fifteen polar stations and over forty auxiliary stations have been established.

A distinction was made between the observations considered obligatory and those regarded as desirable. Those considered obligatory in the aid of meteorology are, observations on the temperature of the air and of the sea, barometric pressure, humidity, winds, clouds, rainfalls, and the weather and optical phenomena; those for magnetism are for absolute declination, inclination, and horizontal intensity; and for variations of the same.

In the Official Report of the Chief of the United States Signal Service for the year 1881, he said that "Owing to the very mobile nature of the atmosphere, the changes taking place on our portion of the globe, especially in the Arctic Zone, quickly affect regions very distant therefrom. The study of the weather in Europe and America cannot be suc-

cessfully prosecuted without a daily map of the whole northern hemisphere, and the great blank space of the Arctic region upon our simultaneous international chart has long been a subject of regret to meteorologists. . . . The general object is to accomplish by observations made in concert at numerous stations such additions to our knowledge as cannot be acquired by isolated or desultory travelling parties. No special attempt will be made at geographical exploration, and *neither expedition is in any sense an attempt to reach the North Pole*. The single object is to elucidate the phenomena of the weather and the magnetic needle, as they occur in America and Europe, by means of observations taken in the region where the most remarkable disturbances seem to have their origin."

In the expression of these sentiments and in the carrying out, as General Hazen said, the promises of his predecessor, the late General Meyer, by co-operating with the International Committee he was also furthering the objects in view by the late Professor Henry, as expressed in his letter to Hon. B. A. Willis, in which he wrote: "I am predisposed to advocate any rational plan for exploration and observation within the Arctic Circle. Much labor has been expended on this subject, especially with a view to reach the Pole; yet many problems connected with physical geography and science in general remain unsolved.

"I. With regard to a better determination of the figure of the earth, pendulum experiments are required in the region in question.

"II. The magnetism of the earth requires, for its better elucidation, a larger number and more continued observations than have yet been made.

"III. To complete our knowledge of the tides of the ocean, a series of observations should be made, at least for a year.

"IV. For completing our knowledge of the winds of the globe, the results of a larger series of observations than those we now possess are necessary, and also additional observations on temperature.

"V. The whole field of natural history could be enriched by collections in the line of botany, mineralogy, geology, etc., and facts of interest obtained with regard to the influence of extreme cold on animal and vegetable life."

The plan referred to by Professor Henry was the one em-

braced in a Memorial which had been submitted to Congress by H. W. Howgate, then on duty at the United States Signal Service Office. The efforts for this *preliminary* polar expedition resulted in the despatch to Cumberland Sound, by the aid of private subscription only of the *Florence*, a fore and aft vessel of fifty-six tons, built in Wells, Maine, in 1851, for mackerel fishing; afterwards used by Williams & Haven, Hall's benefactors, as a sealer in the Southern seas. Although a staunch and fair sea-boat, she was too small for the purpose, and sailed at least two months later than was desirable, leaving New London August 3d, 1877. Her three professed objects were, to collect material, dogs and sledges; secure the help of the Esquimaux for a second steamer which it was proposed should follow; accomplish some scientific work, and repay the outlay by whaling.

The *Florence*, under the command of Captain George E. Tyson, the leader of the floe party from the *Polaris*, first anchored in Ni-an-ti-lic harbor, on the western shore of Cumberland Sound, and after securing there a number of Esquimaux and materials, anchored, October 7th, in An-naw-nac-took, in about latitude 67° N., longitude $68^{\circ} 40'$ W. A small observatory and working-place was erected under shelter for meteorological and other observations, and as soon as the snow became compact a snow-house built over this tent, which remained as a lining. Scientific work was begun at once in the interests of meteorology and the collection of specimens in natural history. The co-laborers were Mr. Ludwig Kumlien and Mr. O. T. Sherman.

But on the return of the *Florence* to Godhavn, July 31st, no expedition steamer was to be seen, nor a word of news of such, or of letters from home; after three weeks of waiting, therefore, profitably employed in scientific labors, the *Florence* returned to Cumberland Sound and re-landed the Esquimaux and their effects. September 12th she headed for home, reaching St. John's, Newfoundland, on the 26th, from which port, after encountering a storm of unusual fury, Captain Tyson's skill brought her safely into Boston, October 30th, 1877.

The value of this expedition will thus readily appear to consist in the labors of the scientific officers who have been named.

CHAPTER XX.

LADY FRANKLIN BAY.

The Greely Expedition—The Names of the Members of the Party—The Instructions of the Chief Signal-Officer—The Proteus sets out to convey the Party to Franklin Bay—Establishing Fort Conger—Attempted Reliefs in 1882 and 1883—Expeditions of the Neptune and the Proteus—The Latter Crushed—Lieutenant Colwell's Boat-Journey South—Return of the Relief Expedition—Spicy Letter of Mr. Linden Kent to General W. B. Hazen.

THE colony at Fort Conger, in Lady Franklin Bay, lat. $81^{\circ} 44' N.$ and long. $64^{\circ} 30' W.$, was established under an act of Congress, appropriating the sum of \$25,000 for this purpose. First Lieutenant A. W. Greely, U. S. A., in June, 1881, was charged with the establishing of a permanent station at the most suitable point north of the 81st parallel, and contiguous to the coal vein discovered near Lady Franklin Bay in 1875. This station was to be maintained for three years at least, and an annual visit should be paid to the station to carry fresh food and supplies, and, if necessary, to bring back invalid members of the expedition and to carry out fresh men to take their places.

The party consisted of:

Lieutenant and Brevet-Major A. W. Greely; Lieutenant F. F. Kislingbury; Lieutenant James B. Lockwood; Dr. O. Pavy, Acting Assistant Surgeon and Naturalist; Sergeants Brainard, Fredericks, Long, Elison, Cross, Linn, Jewell, Ralston, Israel and Rice; Corporal Saler; Hospital Steward Biederbeck; Privates Connelly, Bender, Ellis, Whistler, Henry and Schneider, and Frederick Christiansen and Jens Edwards, Esquimaux.

Lieutenant Greely received his instructions from the Chief Signal Officer, General Hazen.

The directions for the outward voyage, and the general work of the party after reaching their station, required that after leaving St. John's, Newfoundland, "except to obtain Esquimaux hunters, dogs, clothing, etc., at Disco and Upernavik, only such stops will be made as the condition of the

ice necessitates, or as are essential in order to determine the exact location and condition of the stores cached on the east coast of Grinnell Land by the English Expedition of 1875. During any enforced delays along the coast it would be well to supplement the English depots by such small caches from the steamer's stores of provisions as would be valuable to a party retreating southward by boats from Robeson's Channel. At each point where an old depot is examined, or a new one established, three brief notices will be left of the visit—one to be deposited in the cairn built or found standing, one to be placed on the north side of it, and one to be buried twenty feet north (magnetic) of the cairn. Notices discovered in



LIEUTENANT A. W. GREELY.

cairns will be brought away, replacing them, however, by copies."

The steamer *Proteus*, on her arrival at Ladv Franklin Bay, was to discharge her cargo with the utmost despatch, and return to St. John's, bringing a report of the proceedings and observations made during the voyage, while the party which landed, after erecting a dwelling-house and observatories, were to make, in accordance with the proposals made to the navy department, sledging expeditions for geographical surveys to the high land north of Cape Joseph

Henry; their chief work, however, was to be that of the scientific observations which have been named.

Leaving St. John's, Newfoundland, July 7th, 1881, Lieutenant Greely reached Godhavn on the 16th, the voyage being made in the face of continuously adverse winds, two strong northerly gales and constant cloudy and foggy weather. The ship behaved admirably. The only ice seen south of Cape Farewell was a few icebergs off Funk Island, and about forty in 52° N. and $53^{\circ} 15'$ W. Pack-ice was fallen in with at 10.30 P. M. July 12th, in lat. $61^{\circ} 30'$ N., $53^{\circ} 30'$ W., and a second pack encountered the same day, at 2.30 P. M., in $62^{\circ} 30'$ N., $52^{\circ} 15'$ W., was passed through in an hour; neither offered

any obstructions to free passage or caused the slightest delay. They both consisted of ice-floes varying from one to eight feet above the water. Coming from the east coast of Greenland they had drifted with the southerly current from Cape Farewell into Davis Strait.

From Herr Krarup Smith, inspector of North Greenland, it was learned that the past winter in Greenland, except a brief period of cold in March, had been one of marked and unusual mildness, and that the ice north of Upernavik had broken up very early. July 20th, Dr. Octave Pavy joined the expedition as acting assistant surgeon. Twelve dogs, a large quantity of dog-food, and some sealskins were procured, with a considerable quantity of "*mattak*," skin of the white whale, a very valuable anti-scorbutic; and a few articles of fur clothing obtained by barter, as they could not be bought for money. Hard bread and tobacco were principally given in exchange.

The remains of the house purchased by the Florence in 1880 were taken on board, as well as thirty thousand pounds of buffalo pemmican stored by the same expedition. A good set of observations for time were made July 19-20th, at the only hours during which the sun shone.

Leaving Godhavn the morning of the 21st the vessel reached Rittenbenk the same forenoon. At that point were purchased a number of sealskins, a large quantity of dog-food and other minor articles, which had been accumulated for the expedition through the energy of Dr. Pavy. Being delayed by the fog Lieutenant Lockwood was sent with a party to obtain birds from Awe-Prins Island. He returned that evening with sixty-five guillemots (Alcaawa or Alca Bruennichi). It was said at Rittenbenk that the spring had been the most forward one for years.

From Rittenbenk, running through the Waigat, the steamer was off Upernavik 9 P. M. July 23d, but owing to the fog could not enter the harbor until next morning. Two Esquimaux who were expected to accompany the expedition were not available, and in consequence a trip to Pröven, about fifty miles distant, was necessary to obtain others. Skin clothing could not be obtained, except ten suits, which having been made by order of the Danish Government for the use of the International Polar Station of Upernavik of 1882-83, were now sold.

On the morning of July 25th Lieutenant Lockwood left in the steam-launch *Lady Greely* for Pröven, taking a circuitous route inside the islands, rendered necessary by bad weather. He returned early on the 28th, bringing for service with the expedition a native, Jans Edward, and a half-breed, Frederick Shorley Christiansen; he also procured about a dozen suits of skin clothing, which, though second-hand, were very serviceable. He had killed one hundred and twenty guillemots during his voyage. The launch behaved admirably, both as a sail-boat and under steam.

Lieutenant Kislingbury, under orders, made two visits, July 24th and 25th, to the "Loomery" near Sanderson's Hope, bringing back the first day three hundred fine birds, and on the latter one hundred and fifteen, all guillemots (*Alca Awa*), and ten dogs, five of whom died of dog disease, and must have been sick when sold. Additional dog-food, sledge fittings, dog harness, and sealskins were also bought. It was through the marked interest and kindly influence of Inspector Smith that the expedition secured the services of the natives and obtained so fair a stock of needed articles.

The meteorological records of the past winter showed it to have been very mild, and the spring very early. Inspector Smith remarked that in fourteen years Upernavik had never been so green. Reports from Tessi-ussak were to the effect that the ice, breaking up very early, was all gone. On the afternoon of July 29th the anchorage of Upernavik was left, and at 7 P. M., having run out the southern way, the vessel was distant three miles, just off the island to the west. Running northward a few hours the Middle Passage was taken, and at 7 A. M., July 31st, the engines were stopped, as the dead reckoning placed the vessels only six miles south of Cape York; a dense fog prevented the land from being seen, but an hour later, the fog lifting a few minutes, showed land about five miles distant. This experience of the "Middle Passage" may be fairly said to have been without parallel or precedent. The run of the English Expedition of 1875-76 from Upernavik to seventy five miles south of Cape York in seventy hours was said to have been unprecedented; this passage by the same route, and to within five miles of Cape York, was made in thirty-six hours, half the time taken by the expedition under Sir George Nares to run a less distance.

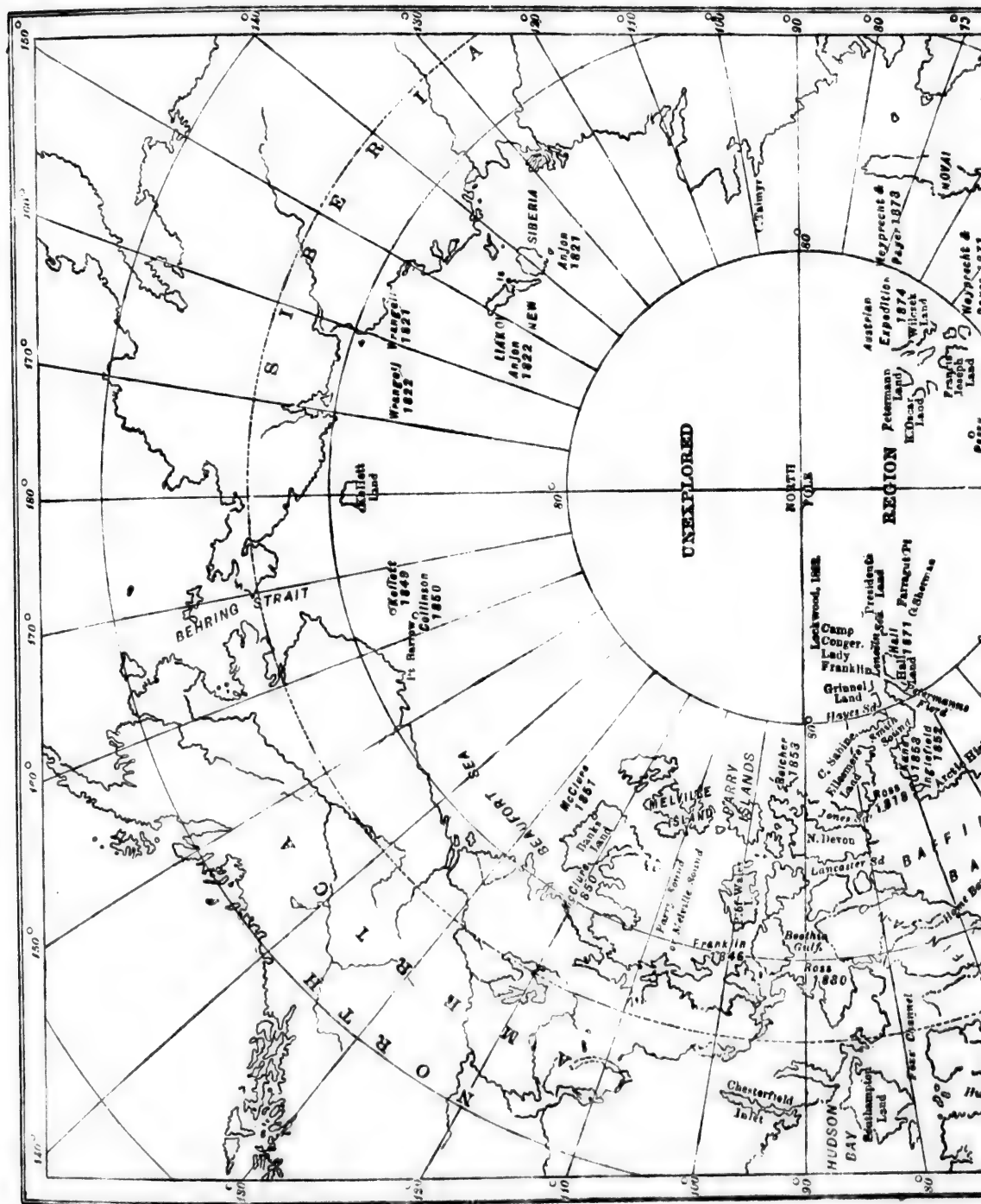
Nothing in the shape of a pack was encountered in Baffin

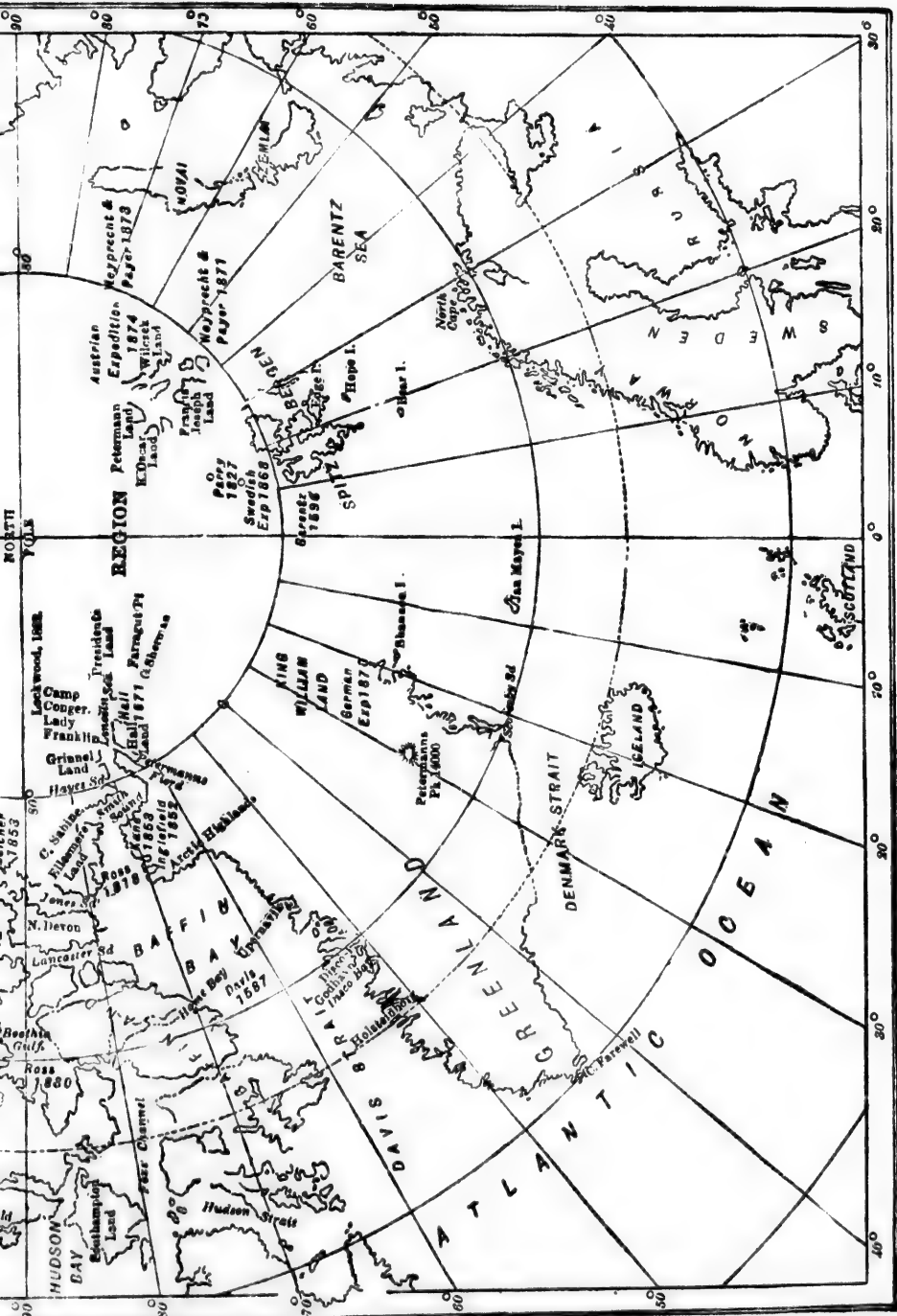
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Bay; but in about $75^{\circ} 08' N.$, $63^{\circ} 40' W.$, a pack was seen to the westward; whether open or compact was uncertain. At 8.15 A. M. July 31st, the fog lifting, disclosed Petowik glacier near, to the north of which, in small patches of dirty reddish color, was seen the red snow among the "crimson cliffs" of Sir John Ross. Sighting the Carey Islands at 3.10 P. M., two parties were landed on the southeast at 5.45 P. M. The party under Dr. Pavy obtained from the cairn on the summit the record left by Captain Allen Young in 1875 and 1876, and with Lieutenants Greely and Lockwood found and examined the whaleboat and depot of provisions left by Sir George Nares in 1875; they were in good and serviceable condition.

August 2d Littleton Island was reached. Here a personal and exhaustive search of seven hours was necessary to find the English mails. There was a very small cairn near the mails, but with no record. A record enclosure was left here, and Lieutenant Lockwood with a party landed about six and a half tons of coal, as a depot of fuel for possible future use. Lieutenant Kislingbury and Dr. Pavy visited Lifeboat Cove to communicate with the Etah Esquimaux and see the Polaris winter-quarters. Several photographs of the surroundings were taken by Sergeant Rice, and a number of relics were brought off. The transit instrument of the Polaris was found about twenty feet from the cairn.

About 7.45 P. M., off Cape Lieber, a heavy pack against the land was passed to the eastward, and at 9 P. M., August 4th, the vessel was stopped for the first time by ice, in the extreme southeast part of Lady Franklin Bay, only eight miles from destination. The pack was a very heavy one, and running from Cape Baird northward in a semicircle, reached the Greenland coast, where it touched the land just south of Offley Island, near the mouth of Peterman's Fiord. It consisted of thick Polar ice, ranging from twenty to fifty feet in thickness, cemented together by harbor ice from two to five feet thick. It was impossible to do aught but wait. The vessel was tied to the pack off Cape Baird, and awaited a gale.

August 5th Greely went ashore at Cape Lieber, with Lieutenant Lockwood, Dr. Pavy and a party, to examine the ice from the cliffs. Lieutenant Lockwood erected a cairn on the highest peak. No other cairn could be seen on it or from it, nor on other peaks visited by Greely and Dr.

Pavy. Occasional lanes of water could be seen through the rifts of the fog-cloud which covered Hall-basin; but the main pack was firm and unchanged. August 6th, the pack moving slightly, obliged the vessel to change her mooring-place from time to time; it drove the ship out of Lady Franklin Bay, and during two days she was gradually driven south; probably twenty-five miles of ice in huge fields passed southward. Every opportunity was improved to steam around such fields, to keep head against the southerly current; but by the evening of August 8th the steady north wind had forced the whole pack down, while the fields, previously driven southward, packed fast together, formed a huge, compact barrier, stretching from Carl Ritter Bay across to Hans Island. Only a mile or so of open water remained. A nip appeared most probable, and preparations were hastily made to unship screw and rudder. During the night matters improved somewhat; but again, during the 9th and 10th, the ship was forced slowly southwards to within about five miles of Hans Island, having lost about forty-five miles of latitude.

About noon of the 10th the long-desired southwest gale set in, accompanied by snow, starting the pack northward. The snow cleared the next morning, but the gale fortunately continued, and open water was visible on the west coast as far northward as could be seen. At 7.30 A. M. the ship rapidly ran northward, and about 1 P. M. again passed Cape Lieber, and at 2.40 P. M. had crossed Lady Franklin Bay. Either ice-foot or pack-ice jammed against the shore covered Watercourse Bay, but a narrow lane permitted the vessel to enter Discovery Harbor just inside Dutch Island, where harbor ice about eighteen inches thick was found, covering the whole harbor as well as the western half of Lady Franklin Bay. Lieutenant Lockwood, sent to examine the bay, reported the place an excellent one for camp, the bay partly clear, but shallow. He thought it probable the vessel could come within about two hundred yards of the shore; the bay, however, was of such shape that, while discharging, the vessel would be unprotected against ice, as it is exposed to all winds from northeast to south-southwest. The coal was so located that it could be readily mined after ice formed, and could, if required, be hauled without difficulty to Watercourse Bay or to Discovery Harbor. Lieutenant Greely reluctantly decided to settle at Discovery winter-quarters; and it was a fortunate decision, for Watercourse Bay was full of pack-ice.

On the 12th the vessel broke her way through two miles of heavy ice, and anchored off the cairn about one hundred yards from shore; the men were divided into two gangs, to work day and night by four-hour reliefs, until the general cargo was discharged, which was done in sixty hours. Coal was landed, of which there was about one hundred and forty tons, enough to last two winters without mining any. Work on the house progressed rapidly, though but three or four men could be spared for the work. The foundation was finished, floor stringers laid, and about one-eighth of the frame set up. Fourteen musk oxen were immediately killed, and enough meat procured for issue, three times a week, for the following seven months, besides ten days' rations of dried birds. "The post was named Fort Conger, in honor of Senator Conger, of Michigan. Photographic views have been, and will be, taken once each day. From these one can best judge of the progress and condition of affairs."

It is proper to state, says Lieutenant Greely, that a retreat from here southward to Cape Sabine, in case no vessel reaches here in 1882-3, will be safe and practicable; although all but the most important records will necessarily have to be abandoned; abstracts could and will be made of those left.

In the reports of the Signal Officer for 1881-2 it is stated that "The station has supplies for two years; that it was contemplated to be visited in 1882 and 1883 by a seal steamer or other vessel, bearing such supplies and additions to the party as might be deemed needful; and that in case such vessel is unable to reach Lady Franklin Bay in 1882, she will cache a portion of her supplies and all of her letters and despatches at the most northerly point she attains on the east coast of Grinnell Land, and establish a small depot of supplies at Littleton Island. Notices of the locality of such depots will be left at one or all of the following places, viz.: Cape Hawks, Cape Sabine and Cape Isabella. In case no vessel reaches the permanent station in 1882, the vessel sent in 1883 will remain in Smith's Sound until there is danger of its closing by ice, and on leaving will land all her supplies and a party at Littleton Island, which party will be prepared for a winter's stay, and will be instructed to send sledge parties up to the east side of Grinnell Land to meet this party. If not visited in 1882, Lieutenant Greely will abandon his station not later than September 1st, 1883, and will retreat southward by boat,

following closely the east coast of Grinnell Land, until the relieving vessel is met or Littleton Island is reached.

"During the first session of the Forty-seventh Congress an act was passed, June 27th, 1882, appropriating \$33,000 for the supply and relief of Lieutenant Greely's party; and under this appropriation Mr. William M. Beebe was sent out with men and supplies on board the Neptune on the 8th of July following. His report to the Signal Officer, dated St. John's, N. F., September 28th, tells the brief story of the failure of this vessel to reach the station.

"The Neptune met the first field ice July 13th, lat. 60° N., long. 54° W. Mr. Beebe says that these fields, though not large, were very heavy and solid, and this was undoubtedly the heavy winter ice, borne from the eastern coast of Greenland



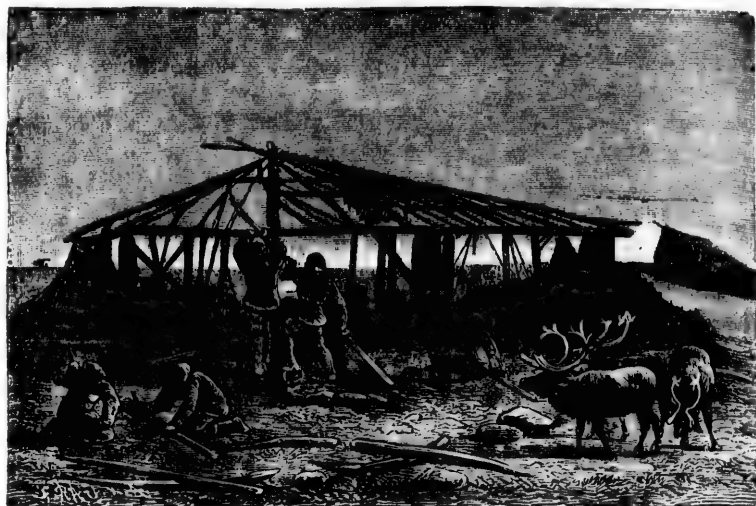
PACK-ICE.

by the strong current which sets southward from about Iceland, turns to the westward and northward around Cape Farewell, and flows up the western coast of Greenland, until, in lat. (about) 67° N., it meets and mingles with the current from Baffin Bay. These united currents set southward with great strength down the coast of Labrador, and, trending eastward, pass around and down the eastern coast of Newfoundland and into the Gulf Stream, carrying with them the immense icebergs launched from the numerous glaciers of West Greenland and so much of the ice-fields as had survived the passage from Davis Strait." The passage of the ship did not exceed three miles an hour, but she broke through the fragments of solid ice-pans, clearing the floe within two days, and arriving at Godhavn on the 17th. Here she learned the

death of the Danish Inspector Smith, so frequently referred to in all previous American expeditions. Leaving Godhavn July 20th, the Neptune encountered a blinding snowstorm, rendering it impossible to pick her way through the channels. She tied up to the ice-fields for the night. Working again with difficulty from the 23d to the 28th, after helplessly drifting with the tides in plain view of Cape York and the Crimson Cliffs of Beverly, she passed Littleton Island; but, a half hour later, was checked by an unbroken ice-barrier, from twelve to twenty feet thick, extending from Cape Inglefield on the west, across the sound, to Ross Bay and to the northern horizon. Turning again southward, and looking in only at Life-boat Cove and Port Foulke, she made a tolerably comfortable anchorage in Pandora Harbor, finding here Sir Allen Young's record of his visit in the Pandora, 1875; and, for a most acceptable change from the ordinary ship's fare, abundance of game—Arctic hares, eider ducks, auks, and a variety of gulls. August 7th, the field ice having been thoroughly broken by the southwest gales, the Neptune again turned northward, reaching on the 10th lat. $79^{\circ} 20'$, twelve miles from Cape Hawks and seventeen from Cape Prescott. On the 18th she anchored in Payer Harbor, lat $78^{\circ} 42' N.$, long. $74^{\circ} 21'$, finding on Brevoort Island, and on an islet near it, Captain Nares' record and the depot established by Captain Stephenson. The broken cache was rebuilt, and a record of the Neptune placed in it.

Making a third northward effort on the 23d, but checked in it, Captain Sopp found the condition of the ice and the prevalence of the southwest winds to demand that the ship should seek a harbor; he returned to Pandora Bay, and from thence, after several unsuccessful attempts even to establish a depot as far north as Cape Hawks, anchored off Littleton Island on the 28th. Mr. Beebe here effected a landing, and established one cache on Cape Sabine and a second on Littleton Island, securing these so as to be invisible from any point a few yards distant, that they might be safe from the Etah Esquimaux, a party of whom had already twice visited the Neptune. Minute directions for finding these stores, as well as a whaleboat placed on Cape Isabella, were left on another part of the island, as had been requested by Lieutenant Greely's letter of the previous year. Mr. Beebe was satisfied that if Lieutenant Greely should come down to Cape

Sabine he would readily find these. After effecting this provision for the future of that party, he was, however, reluctantly compelled to assent to the decision of the captain of the *Neptune*, its first officer, Mr. Norman, and the surgeon, to return to the United States. Further delay was useless and extremely hazardous, and the safety of the ship and the lives of all on board demanded an immediate departure. On the 8th of September Godhavn was again reached, and the dogs, dog-food and lumber put on shore for a subsequent expedition: on the 24th the *Neptune* anchored again at St. John's. The voyage was another and a striking illustration



ESQUIMAUX BUILDING A HUT.

of the uncertainty of ice-navigation, especially as contrasted with that of the *Proteus* when she took out the party under Lieutenant Greely the previous year. It was disheartening to the friends of Arctic exploration, as well as to the relatives of the explorers, that no supplies could be afforded to those at such distance from home, and no reports of their labors or of their condition could be received. Nothing whatever could be done until the summer of 1883.

In obedience to orders from the War Department and from the chief signal officer U. S. A., Lieutenant E. A. Garlington left New York on board the United States Steamer *Yantic*, Commander Wildes, June 12th, 1883, and, on arriving at St.

John's on the 21st, finding there the steamship Proteus, which had been chartered for an expedition to relieve Lieutenant Greely's party, nearly ready for sea. After a consultation with Commander Wildes, the steamships Yantic and Proteus left St. John's June 29th, Lieutenant Garlington having been joined on board the Proteus by Lieutenant J. C. Colwell, U. S. N., on duty, under orders from the Navy Department, as a volunteer.

Disko Island was sighted July 6th, but Captain Pike, "by some error in his bearings," ran by the entrance to the harbor, and was making about due course for Rittenbenk, when some one on deck discovered a pilot-boat steaming after them. The ship was put about and the captain piloted into Godhavn.

The Yantic arrived on the 12th, having come all the way under sail and encountering no ice. Commander Wildes informing the lieutenant that he would remain at Godhavn probably a week, and then go to the Waigat Strait to procure coal, Garlington left the harbor on the 16th, determined to push his way forward without further delay. The Inspector and the Governor of Godhavn both assured him that there would probably be no difficulty in reaching the station. On the 17th, when passing Hare Island, icebergs were numerous in every direction. On the 18th the Proteus was forcing her way through ice varying from two to six feet in thickness, and on the second day following she was stopped by an impenetrable pack.

The Proteus again turned south, Cape York in sight; on the 22d the southeast Carey Island, the cache of Nares' Expedition, was visited, and a record taken up which was made there August 1st, 1881.

The record is as follows:

"International Polar Expedition to Lady Franklin Bay, fitted out by the War Department, under the supervision of General W. B. Hazen, Chief Signal Officer U. S. Army, and commanded by First-Lieutenant A. W. Greely, Fifth Cavalry, A. S. O. and Asst.

"Left in the Steamship Proteus, island of Upernavik, 7 P. M., July 29th, 1881, and at 7 A. M., July 31st, stopped by a heavy fog about six miles south of land supposed to be Cape York.

Middle passage taken and found to be *entirely unobstructed* by ice. All well. This notice deposited August 1st, 1881.

(Signed)

"J. B. LOCKWOOD,

"Lieut. 23d Inf. U. S. Army, Third Officer."

(MEMORANDA.)

"One keg of biscuits opened and found mouldy. One can of beef opened and found good. Stores generally found apparently in same condition as when deposited here in 1875.

(Signed)

"J. B. LOCKWOOD,

"Lieut. U. S. Army."

At Cape Sabine, Payer Harbor, the cache of stores made by the party from the Neptune the year previous, was found to be in fair condition.

Under the ever quickly changing, but now favorable condition of the leads in the ice, Lieutenant Garlington determined to go out in the harbor, to examine these and endeavor once more to go north. By his glass he saw that "the pack had broken and open lanes of water had formed, leading across Buchanan Strait along Bache Island and across Princess Marie Bay. At 8 p. m. the Proteus rounded Cape Sabine and proceeded through the open leads in the broken ice to within four miles of Cape Albert, where the ship was stopped about six hundred yards from the open water, and Captain Pike's efforts to force a passage by ramming entirely failed."

The Proteus on arriving next day again within four miles of Cape Albert, discovered that the open lane was now filled with a solid pack; she turned southward in a fruitless attempt to make her way out; at 2.45, movement in any direction was impossible. Ice from five to seven feet in thickness came against her sides and then piled itself up on the floe amidships and astern; at 4.30 p. m., the starboard rail gave way, the ice forced its way through the ship's side into the bunker, the deck planks rose, the seams opened out; at 7.15 she slowly passed out of sight on an even keel. Alive from the outset to the coming crush of the nip, Lieutenants Garlington and Colwell and Dr. Harrison had succeeded in saving one of the boats and a quantity of the stores; the report to the Signal Officer affirms that with the exception of the chief engineer of the Proteus and the boatswain, none of the

crew of the *Proteus* lent assistance to this work, but employed themselves in opening and rifling the boxes even of private clothing. With some of the stores saved, Lieutenant Colwell made a cache three miles west of Cape Sabine, which was afterwards increased by the two sidereal chronometers and a quantity of clothing. The cache was intended for Lieutenant Greely's party.

To render assistance to Greely being now impossible, there remained nothing for the parties from the *Proteus* except the choice either of spending the winter with the Esquimaux or attempting to cross Melville Bay in boats. Lieutenant Colwell headed boldly across the bay to establish communication with the *Yantic*; the rest of the party started to coast around the bay and reach Upernavik; after a severe Arctic experience, Colwell reached Upernavik on the 23d, and finding that the *Yantic* was not there, pushed forward to Godhavn where he found the tender, and gladly learned from Commander Wildes that on the 2d of the month at Upernavik, he had received on board all of the other parties from the *Proteus*. Lieutenant Colwell's boats had spent in them thirty-eight days, making a voyage of nearly one thousand miles.

On September 13th the *Yantic* arrived at St. John's, bringing Captain Pike and crew of the *Proteus*, and Lieutenant Garlington and the Greely relief party. A court of inquiry was ordered, before which Mr. Linden Kent acted as counsel for Lieutenant Garlington, and which ended in that officer's honorable acquittal of all blame.

After the return of the survivors of the ill-fated Greely expedition, Mr. Kent wrote the following letter to General W. B. Hazen, Chief Signal Officer:

"WASHINGTON, July 22d, 1884.

"GENERAL W. B. HAZEN:—

"DEAR SIR—My professional relation to Lieutenant Garlington in the late investigation of the failure of the *Proteus* expedition under his command, will signify to you the occasion for this letter. His absence and your published comments on his failure to leave more stores at Cape Sabine suggested to me the propriety of addressing it to you. Your sole object, I must assume, is to fix the responsibility for the loss of eighteen brave men where it properly belongs. In the shadow of this great calamity, I will not believe that you

can have a less pure motive. We have been through this investigation together, general, and as the source of our intelligence is the same, I feel that you will the more readily accept the aid that I cheerfully tender to the common cause of truth.

"The world now knows that the sad fate of the eighteen victims was due to the failure to deposit a proper quantity of stores at Cape Sabine. You say that 'the rations which Lieutenant Garlington left at Cape Sabine were in accordance with Lieutenant Greely's instructions. Of course, if more stores had been left, more lives would have been saved.' The legitimate inference from this is, that while the few stores left by Garlington saved the lives of six of Greely's party, the loss of the others was due to his failure to leave a larger supply. Whose fault was it that there was not a sufficient deposit of stores at Cape Sabine? If Garlington's, let him answer for it; if not, you would not wish that he should remain longer under such suspicion.

"In 1882 the Beebe expedition, under your instruction, was organized for the relief of Lieutenant Greely. It was transported north on the ship Neptune, and arrived in the vicinity of Cape Sabine on the 29th of July, and remained until the 5th day of September, having been stopped in its northward course by a barrier of ice. 'In accordance with her instructions,' derived from you, a cache of provisions was established upon 'Littleton Island and another on Cape Sabine of 250 rations each.' The rest of her stores were, by your orders, brought back to St. John's and landed for future use. There was every opportunity to establish a cache of 10,000 rations instead of 250 at Cape Sabine had you so directed. In your testimony before the court of inquiry on the 15th of November, 1883, you approved of Mr. Beebe's course in thus making the depots in accordance with your instructions, though in your testimony before the same court on the 20th of November, in relation to the propriety of leaving the stores at Cape Sabine, you say: 'I have regretted very much ever since that such instructions were not given, and that his supplies were not all left at Cape Sabine.' Surely it was not Garlington's fault that the stores of the Neptune were deposited at St. John's instead of at Cape Sabine, or Littleton Island, nor can I believe that it was Greely's, as you suggest in your memorandum of the 19th inst.



AN ESQUIMAU HUNT.

"Under your sole direction the relief expedition of 1883 was sent north in the *Proteus* under Lieutenant Garlington's command, and arrived off Cape Sabine on the 22d day of July, 1883. If he had had orders, or even permission, to leave supplies at Cape Sabine, there was abundant opportunity to do so; but the court of inquiry found that under your instructions he had neither, and justified his course in not doing so.

"Permit me to remind you that you specially emphasized the necessity of not permitting Lieutenant Garlington to deposit any of his stores on the northward course of the *Proteus* in the very first lines of your written instructions to him, wherein you say: 'You are aware of the necessity of reaching Lieutenant A. W. Greely and his party with the expedition of this year. This necessity cannot be overestimated, as Lieutenant Greely's supplies will be exhausted during the coming fall.' When your attention was called to this, as the records of your office disclosed, that Greely then had a full year's supplies, you said: 'It was either a clerical error or it was put in by Captain Clapp in his first rough draft, and the matter was overlooked afterward.' This is found by the court to have been one of the nine grave errors or omissions noted in your action 'as having either directly led or largely contributed to the abortive issue of the expedition.'

"Again, you justified your course in not permitting Garlington to land any of his supplies on the northward progress of the ship upon the ground that the tender (the *Yantic*) being at Littleton Island would actually be a depot. Your instructions, both written and verbal, were explicit on this point. In the attempt to carry out your instructions 'that no effort must be spared to push the vessel through to Lady Franklin Bay,' the *Proteus* was caught in the ice, and lost off Cape Sabine on the evening of July 23d, 1883. With respect to Garlington's conduct at this time the court, in its finding, says: 'After the disaster the evidence clearly establishes the fact that Lieutenant Garlington and his party saved all they could from the sinking ship, and that they cached near Cape Sabine all the stores and provisions that could be spared before crossing to Littleton Island.'

"Whether the responsibility should be fixed upon Greely or Garlington, these facts recalled to your attention, I think, will relieve you of any doubt as to where it should in fact rest.

"I may add that the court took occasion to note that from July, 1882, to August, 1883, not less than 50,000 rations were taken in the steamers Neptune, Yantic, and Proteus up to or beyond Littleton Island, and yet of that number 1,000 only were left in that vicinity, the remainder being returned to the United States or sunk with the Proteus. This was the provision that was made under your instructions for Greely's arrival at Cape Sabine, although the officers in your department connected with this subject again and again urged the propriety of making large depots on the east side of Smith Sound, and notwithstanding the fact that Lieutenant Greely himself, in a letter addressed to you from Lady Franklin Bay, bearing date August 15th, 1881, said: 'I feel it proper to here state that, in my opinion, a retreat from here southward to Cape Sabine, in case no vessel reaches us in 1882 or 1883, will be safe and practicable,' thus foreshadowing to you—his chief, charged with his relief—the very course that he subsequently pursued with such indescribably terrible results.

"If strict obedience to orders be the highest duty of a soldier, let Garlington have the credit which the court accorded to him, of having faithfully executed yours, that the regret over the fatal consequences to him and his expedition in having done so may be in some degree assuaged with the reflection that, as a soldier, he could have done nothing else. Pardon me if I express my surprise at your attempt, in your memorandum of the 19th inst., to shift the responsibility of Garlington's instructions from yourself to Greely. When the court says Garlington carried out your orders, you in substance answer: 'They were Greely's instructions, not mine.' Does it not occur to you that the country may think if Greely is to be responsible for the orders that issue from your high office, that he should also enjoy its emoluments and dignities?

"Amid the expression of the world's admiration for the heroic conduct of Lieutenant Greely and his courageous band, the one word of reproof and criticism from his chief will be an unexpected greeting to him emerging from the Arctic night of suffering and starvation.

"LONDON KENT."

CHAPTER XXI.

LIEUTENANT RAY'S EXPEDITION.

The Expedition of Lieutenant P. H. Ray to Point Barrow—His Letter to General Hazen—Return of Lieutenant Ray—The Greely Party left at Lady Franklin Bay by the Proteus—Relief Expeditions sent out in 1882 and 1883—They do not find the Colonists—Two Years on the Shore of Lady Franklin Bay—All in fair health—Lieutenant Greely's Instructions to the Relief Vessels—The Provisions should be Cached near Cape Sabine and at other Places on the East Coast of Grinnell Land—The Instructions not heeded—Lieutenant Garlington's Orders.

THE location of an observing party in Alaska was made under the general power of the Signal Officer to establish stations in the United States.

The Chief Signal Officer intrusted this expedition to the charge of First Lieutenant P. H. Ray, Eighth Infantry. Lieutenant Ray's party consisted of Acting Assistant Surgeon G. S. Oldmixon, with three sergeants and eight subordinates. His orders were to sail as soon as practicable from San Francisco, and establish a permanent station near Point Barrow. Special instructions in regard to the meteorological, magnetic, tidal, pendulum and other observations, and for the collection of specimens for the National Museum, were placed in his hands. He was informed that it was designed to visit the permanent station by steam or sailing-vessel in 1882, '83, and '84.

Ray's party sailed from San Francisco in the steamer Golden Fleece, July 18th, 1881.

On the 15th of September he wrote to General Hazen from Ooglaamie, Alaska:

"SIR:—I have the honor to report that the expedition arrived at this place on the 8th inst., and after a careful survey, found the most suitable place for the station to be on the northeast side of a small inlet, which I have named Golden Fleece, about eight miles from the extreme northern point

of Point Barrow, there being no high land between here and there, and all the intermediate country being interspersed with small lakes and lagoons; the only high ground at Point Barrow is occupied by an Indian village. The point adjacent to Point Barrow, where Macguire, R. N., had his observatory, is, I am told, submerged during western gales. On the opposite side of the inlet, about one and a half miles away, is the Indian village of Ooglaamie, from which I have named the observatory. The voyage has been a long one, and particularly a trying one upon the party, as a heavy gale was encountered off Cape Lisburne, driving us out of our course to the north and west. And there will still be more or less suffering before I can get quarters up, as the ground is now covered with snow; ice is forming rapidly on the inlet and lakes, and the cargo was landed with extreme difficulty, as it had to be done on an open beach; and for two days, through a heavy surf, which often half filled our boats in landing, the spray freezing where it struck, and the vessel liable to be driven out to sea at any hour. On the 12th a small wharf was built, and that night fortunately, the wind and sea abated and the balance of the cargo was landed on the 13th and 14th, the natives rendering valuable assistance with their oomiaks. Everything is now on the beach above high-tide mark, nothing damaged or broken of any importance, so far as I can find out. It is utterly impossible for me to state now what may have been omitted with the time I have got, as I cannot detain the vessel for fear she may be frozen in before passing Behring Straits; I will only be able to check and correct as I put my stores in the building. I have no changes to recommend as to the members of the party.

"From what Professor Baird said to some members of the party, I find that he expected me to procure specimens of native arms, boats, implements, etc. As these are of value to the natives they will have to be purchased in trade, and as I have not a sufficient supply for that purpose, having only taken enough to purchase fresh meat and to hire boats and labor in landing, I respectfully ask that I may be instructed in the matter.

"In my report from Plover Bay I mentioned the necessity of the vessel next year sailing from San Francisco at an earlier date than the expedition this year; the severe experience of the last fifteen days confirms my impressions of

that date. Have not seen the sun since I have been here. I give the latitude and longitude by dead reckoning from my own log-book—latitude $71^{\circ} 17' 50''$ N., longitude $156^{\circ} 23' 45''$ W."

June 24th, 1882, Lieutenant J. S. Powell, U. S. A., sailed from San Francisco in the schooner *Leo*, one hundred and fifty tons burden, with supplies for the Signal Service Station, Ooglaamie. At St. Michael, July 26th, Powell shipped as cabin-boy a native named Kan-u-ark, to act as interpreter and messenger. This was effected only after much persuasion. The news of the loss of the *Jeannette* having already reached the people, they seemed loath to venture abroad in the white man's ships. "The simple native of these shores," says Powell, "when he sees the mighty oomiaks of the white men go away in the gloom of the mysterious North, refuses to venture within the reach of the baleful power of the icy North."

On reaching Behring Sea, a heavy gale from the north was experienced, with weather too thick to make headway toward the straits. The *Leo* for several days lay without sight of land or sun about four miles from the entrance of Plover Bay; the fog clearing, she was towed up the bay by the United States Revenue Cutter *Corwin*, Captain J. T. Healy, and again brought out to sea by the same ship.

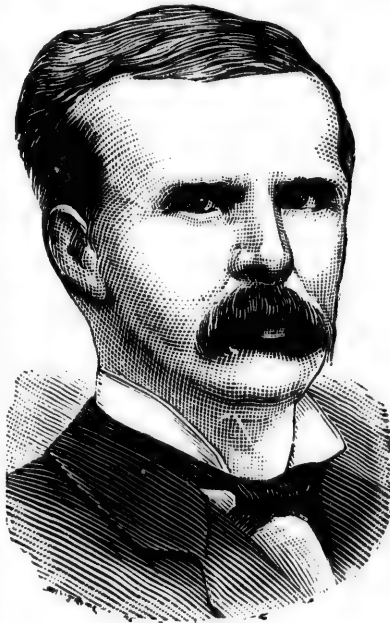
The ship lay at anchor three days at Port Clarence, and thence passed through the strait and crossed the Arctic Circle. On the 14th Cape Lisburne was sighted under the experience of another heavy gale; but at 12 M., on the 18th, Powell was in a calm, longitude $158^{\circ} 50'$ W., latitude $71^{\circ} 21'$ N., and at 8 of the same day a southeast breeze sprang up, which Powell thought would quickly bear the ship to Point Barrow. The next morning he was surprised to find himself considerably to the northeast of it, by the action of a strong northeast current. On landing at the station, August 20th, Lieutenant Ray confirmed the observations of this current, adding that had it become calm, the *Leo* might have drifted to the northeast and been crushed by ice; the vessels caught in this current move off to the northeast, and not a piece of timber ever returns.

Lieutenant Ray's party were recalled by a positive enactment of Congress at its session of 1882-83. They arrived in Washington in October, 1883.

The *Proteus* left the Greely party on August 18th, 1881, and arrived safely at St. John's, N. F., after a voyage in which no disturbing incident occurred. The two relief expeditions sent out in 1882 and 1883 returned without obtaining any news concerning the party.

The Greely colony passed two years on the shore of Lady Franklin Bay, near the extreme limit of Arctic exploration, without suffering from accident or disease, although at times the temperature was 61 degrees below zero. Several of the colonists were frostbitten while making journeys eastward and westward from the station, but when the camp was abandoned, in 1883, the twenty-five men were all in fair health.

Lieutenant Greely had forwarded to Washington several suggestions which ought to have been carefully followed. He knew that if the relief vessels should fail to reach the station his own journey southward would be very difficult and perilous. He expected that if the relief parties should not reach him they would at least deposit additional provisions at several places on the southern half of his line of retreat. He suggested that one of these deposits should be within a few miles of the spot at Cape Sabine where he and his companions were found. They were all to be on the west side of the channel or strait, *i. e.*, on the east coast of Grinnell Land, for he well knew that he might not be able to cross the strait to Littleton Island and Lifeboat Cove. He further wrote that after having established these provision depots on the west side of the strait, and in case no vessel had reached the permanent station in 1882, the vessel sent in 1883 should remain in Smith's Sound until there was danger of its closing by ice, and on leaving should land all her supplies and a party



LIEUT. FREDERICK F. KISLUMBURY

at Littleton Island, which party should be prepared for a winter's stay and should be instructed to send sledge parties up the east side of Grinnell Land to meet his party. If not visited in 1882, he would abandon his station not later than September 1st, 1883, and would retreat southward by boat, following closely the east coast of Grinnell Land until the relieving vessel was met or Littleton Island was reached. The relieving party should keep their telescopes on Cape Sabine, the very spot where the survivors were finally rescued, and the land to the northward. Not only must these rescuers carefully scan the western coast for the appearance of the retreating colonists, but they must from time to time send sledge parties across the strait to Cape Sabine and northward from that point. "Such action, from advice, experience and observation," said Lieutenant Greely, "seems to me all that can be done to insure our safety. No deviation from these instructions should be permitted."

When the colonists left their camp they relied upon the provision depots at Cape Sabine so completely that they left provisions sufficient for eight months in their cabin. As they advanced winter set in. The ice robbed them of their boats and at last cast them upon the west shore of Grinnell Land, below Cape Sabine. They found no relief ship, no relief party watching for them on the other side of the strait, and only a few rations. Two expensive expeditions had reached that point, but the stores which should have been deposited there had been carried back to the United States or had gone down with the *Proteus*. It is evident that the lives of all, or nearly all, of the colonists would have been saved if the relief party of 1882 or 1883 had landed a sufficient quantity of provisions on the west side of the strait at Cape Sabine, or Payer Harbor, or near Bache Island. But Lieutenant Garlington received instructions to push his vessel through to Lady Franklin Bay, and not to deposit provisions unless he should fail to push his way northward through Kennedy Channel. If he could not get through to the northward he should retreat to Lifeboat Cove on the east side of the strait, land his stores there and remain for the winter. He was then to send sledge parties across the strait to Cape Sabine. Following instructions, he landed no provisions, but attempted to push his way through and lost his vessel. If he had first deposited his stores at Cape Sabine, not at Lifeboat Cove, on

the other side of the strait, in accordance with the suggestions of Lieutenant Greely to General Hazen, they would have been found by the retreating colonists and many lives would have been saved.

CHAPTER XXII.

LIFE AT FORT CONGER.

The Life of the Colonists at Fort Conger—In Camp—Erecting a House—Scientific Observations—Sergeant Brainard Establishes a Depot of Provisions at Cape Beechey—An Arctic Winter—Meteorological Phenomena—Aurora Borealis—Tidal Observations—Pastimes and Amusements—Among the Floes—Difficult Travelling over Hummocks and on the Frozen Sea—Dr. Pavy, Sergeant Rice, and Esquimau Jens Edwards Undertake a Sledge Journey on the Frozen Arctic—A Wonderful Escape—Graphic Description of Sergeant Rice—Lieutenant Lockwood's Journey to the Highest Point ever Reached—Along the Coast of Greenland—Lockwood Island—Incredible Hardships.

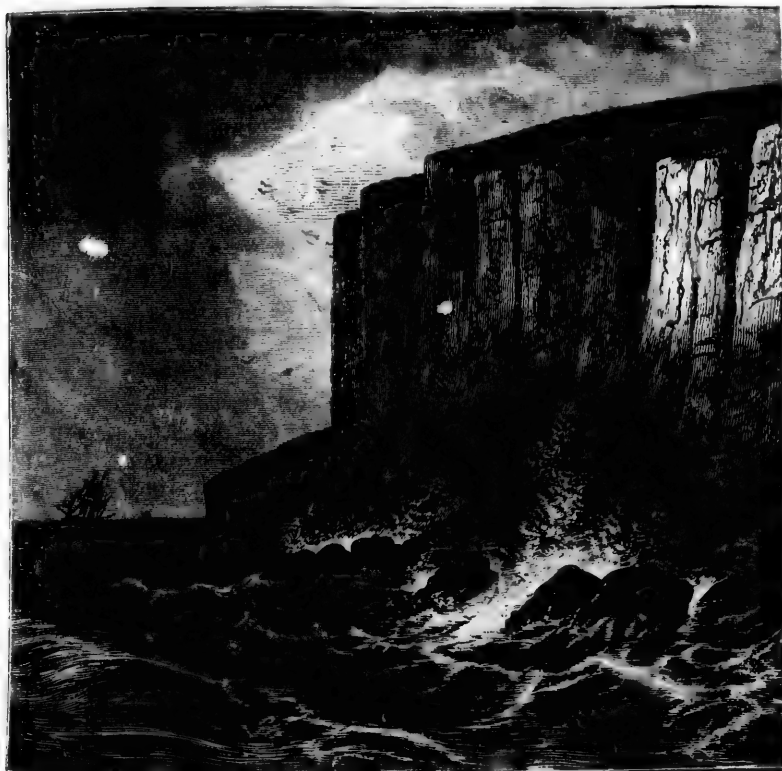
OUT of the twenty-five colonists left by the *Proteus* at Lady Franklin Bay, but seven could be saved by the rescuing party under the command of Commander W. S. Schley, which left the harbor of New York in May, 1884.

The story of the life at Fort Conger, as told by Major Greely and the other survivors, is most interesting, while the record of their scientific observations and explorations adds greatly to our knowledge of a land hitherto almost unknown, and the tale of their sufferings from hunger and cold during the winter of 1883 to 1884 is sad and harrowing in the extreme.

After the departure of the *Proteus*, which conveyed the colonists to Lady Franklin Bay, on August 25th, 1881, the command lived in tents until September 2d, when the double house, which had been constructed in the United States, having been erected, was taken possession of. This afforded far greater protection from the cold, as it was a house within a house. It was divided into two main compartments, with a small kitchen between, the officers occupying one and the enlisted men the other of these two rooms. Cooking was done in common and all fared alike, messing in the quarters in which they lived. The meals were: breakfast at eight, a light lunch at eleven A. M. and nine P. M., and dinner at four.

Their house was finished about a week after the *Proteus* left. It was named, in honor of Senator Conger, Fort Conger. During the first month the cold affected the men more

than at any subsequent time at Fort Conger. Later on in December the temperature sank to from fifty to sixty-five degrees below zero, and so remained for days at a time, but even in that weather the cook's favorite amusement was dancing bare-headed, bare-armed, and with slippers on the top of a snow-drift. During the day the men dressed in ordinary outside clothing, but their flannels were very heavy.



ARCTIC REGION—BEECHEY HEAD.

Five of the men were generally, for a part of the day, engaged in scientific work under Lieutenant Greely's direction.

Scientific observations had been commenced at once upon landing, and were continued without intermission until the abandonment of the post. These were meteorological, astronomical, and magnetic, comprising also the temperature of sea-water, thickness of ice, and the direction and speed of the

tides. Major Greely also conducted a series of experiments on the velocity of sound at different temperatures.

The men not engaged in scientific work were employed generally about an hour a day, and devoted the remainder of the time in amusement. All slept in bunks. The quarters were heated by a large coal-stove, the average heat maintained being fifty degrees above zero. Playing checkers, cards, and chess, and reading were the amusements of the evening. The life was said by Lieutenant Greely to be far from a lonely one, and many of the men said they had never passed two happier years than those spent at Fort Conger.

On September 1st, Kennedy Channel having opened, Sergeant Brainard, in charge of a party in boats, established at Cape Beechey a depot of supplies to be used in the projected exploration of North Greenland, and in November, twenty days after the departure of the sun, Lieutenant Lockwood, Sergeant Brainard, and seven men, with a sledge and dog-team, attempted to cross over to Greenland to examine the provisions left at the Polaris camp by Hall; but the darkness and drifting ice prevented their success, and they were compelled after much suffering to return, one of the party being badly frostbitten. It will be remembered that when the Proteus left Lady Franklin Bay the number of dogs was much reduced by sickness and death, but those left were carefully looked after, and by breeding Major Greely was able in the spring of 1882 to put two good teams in the field, and in nearly all of his explorations the dogs were found most useful and almost indispensable accessories.

On October 15th the sun left them for 135 days, and a twilight, varying from half an hour to twenty-four hours, succeeded. For two months it was so dim that the dial of a watch could not be read by it. On April 11th the sun came above the horizon and remained there 135 days, giving the party a great sufficiency of midnight sun. During three months the stars were visible constantly, the constellations of Orion's Belt and the Great Bear being the brightest. The North Star looked down from almost overhead. Standing alone outside the fort on one of these nights the scene was weirdly grand. To the north flamed the aurora borealis, and the bright constellations were set like jewels around the glowing moon. Over everything was dead silence, so horribly oppressive that a man alone is almost tempted to kill himself, so

lonely does he feel. The astronomer of the party said that with the naked eye a star of one degree smaller magnitude than can be seen here in the same way might be discerned. The moon would remain in sight for from eleven to twelve days at a time.

An aurora borealis, as seen by the colonists at Upernavik, is thus described by one of their number :

"It first appeared in an arch extending from west-by-north to northeast; but the arch shortly after its first appearance broke up and disappeared. Soon after this a new display began in the direction of the western foot of the first arch, preceded by a bright flame, from which emanated rays of a pale straw-color. Another simultaneous movement occurred at both extremities of the arch until a complete segment was formed of wavering perpendicular radii. As soon as the arch was complete, the light became greatly increased, and the prismatic colors, which had before been faint, now shone forth in a brilliant manner. The strongest colors, which were also the outside ones, were pink and green, on the green side purple and pink, all of which were as imperceptibly blended as in the rainbow. The green was the color nearest the zenith. This magnificent display lasted a few minutes; and the light had nearly vanished, when the northeast quarter sent forth a vigorous display, and nearly at the same time a corresponding coruscation emanated from the opposite extremity. The western foot of the arch then disengaged itself from the horizon, crooked to the northward, and the whole retired to the northeast quarter, where a bright spot blazed for a moment, and all was darkness. There was no noise audible during any part of the phenomenon, nor were the compasses perceptibly affected."

The long Arctic winter was necessarily monotonous, but the regular routine of observations, coupled with such military discipline as was not inappropriate to the climate and the mode of living, rendered it more tolerable. One hour's exercise daily was exacted of all. The men were required to bathe once a week, and great care was taken by frequent inspection to see that the quarters and particularly the berths were kept clean. The efficacy of the hygienic arrangements adopted is fully demonstrated by the fact that there was no scurvy in the expedition, notwithstanding that the water used was from melted ice invariably obtained from the floe.

Thanksgiving and national holidays were invariably celebrated by a good dinner, and the first Christmas was rendered pleasant by presents for every member of the expedition from unknown but thoughtful friends.

The thermometer registered on June 30th, 1882, the highest temperature at Lady Franklin Bay which we knew during our stay. It was fifty-two degrees above zero. The lowest was in February, 1883, and was sixty-six degrees below zero. In this February our mercury froze and remained solid for fifteen days, so intense was the cold. The mercury in the thermometer invariably rose during storms or high winds. The highest barometer was slightly above thirty-one inches and the lowest slightly below twenty-nine inches, showing a great range. The greatest variations were in the winter. The electrometer, an instrument used to ascertain the presence of electricity, was set up, but to the astonishment of Lieutenant Greely not the slightest results were obtained. The displays of aurora were very fine, but not to be compared with those seen at Disco Island or Upernavik. As far as Lieutenant Greely could observe, no crackling sounds accompanied the displays, and the general shape was that of a ribbon. The southwesterly horizon was the quarter in which the brightest displays were seen. Sir George Nares reported in 1876 that no shadow was cast by the aurora, but Lieutenant Greely says that he distinctly observed his shadow cast by it. There were no electrical disturbances save those manifested by a rumbling of distant thunder heard twice far away to the north.

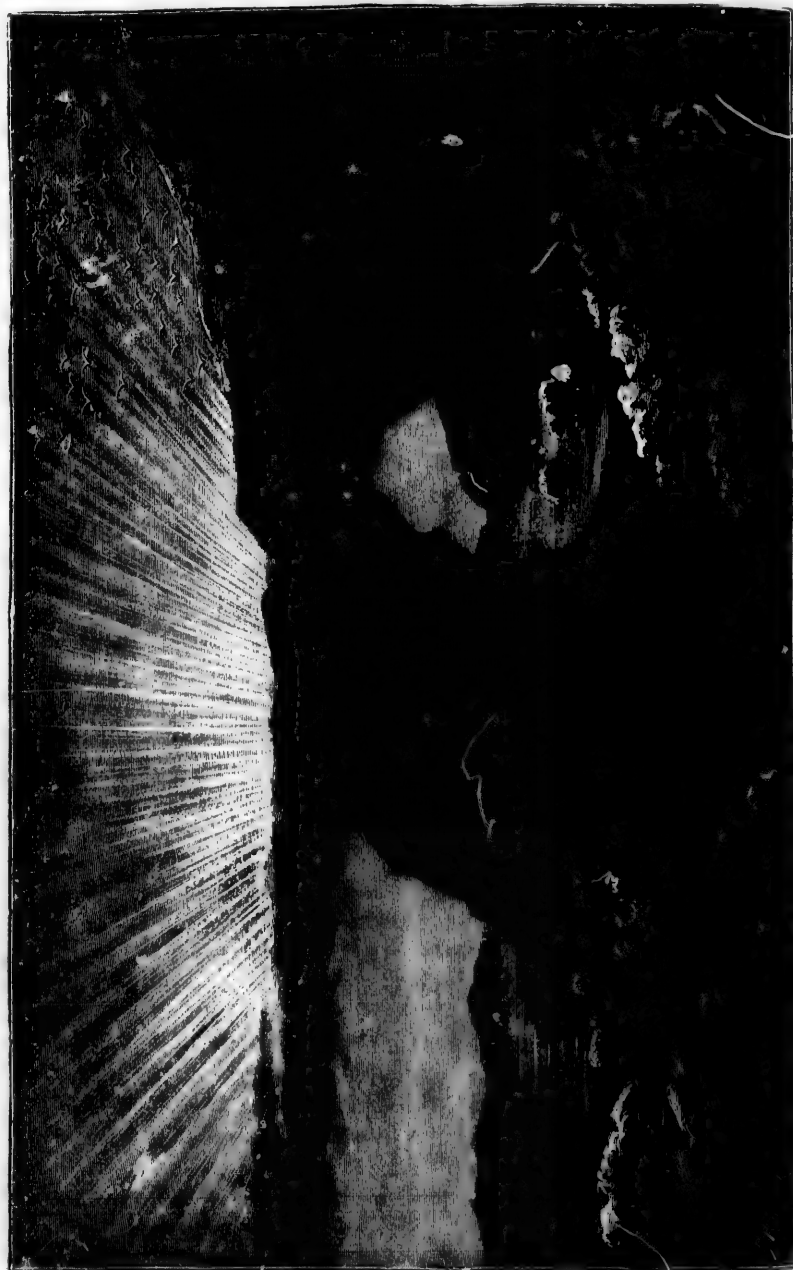
In the case of the tidal observations made, a very interesting fact was discovered, viz.: that the tides at Lady Franklin Bay come from the north, while those at Melville Bay and Cape Sabine come from the south. The temperature of the north tide is two degrees warmer than that of the south tide at Cape Sabine. Why this was Lieutenant Greely would not venture to state. He used in measuring the ebb and flow of the tides a fixed gauge, an iron rod planted in the mud. The average rise of spring tides at Lady Franklin Bay was found to be eight feet. At Cape Sabine the highest tides rise twelve feet. Surf was only observed twice during the two years. At Lady Franklin Bay the average temperature of the water was twenty-nine degrees above zero, or three degrees below the freezing point. Wolves weighing ninety pounds were

killed around Fort Conger, and there are foxes and other animals there. Of fish there is a wonderful scarcity. Perhaps the greatest surprise of the expedition was the taking from Lake Alexander, a fresh water lake, fifteen feet above the sea level, of a four-pound salmon. From the bay or sea only two very small fish were taken during the entire two years, and very few are to be found north of Cape Sabine.

The vegetation at Lady Franklin Bay is about the same as at Cape Sabine, and comprises mosses, lichens, willows, and saxifrage. Snow-storms are, of course, most frequent, and rain falls very rarely. The highest velocity of the wind was registered during a terrific snow-storm—seventy miles per hour. Lockwood's trips to the north in 1882 and 1883 were productive of the most valuable results. Standing, on the 19th of May in each year, where Dr. Hayes had formerly stood at about the same day, Lockwood, from an elevation of 2,000 feet, using his strongest glass on Hall's Basin and Robeson's Channel, could discern nothing but ice-packs. Here it was Dr. Hayes claimed to have seen his open Polar Sea.

Three memorable expeditions were undertaken by the Greely party from their station at Fort Conger, on Lady Franklin Bay. One was to the north, along the coast of Grinnell Land, by Dr. Pavy and Sergeant Rice. The second was also to the north, along the coast of Greenland, by Lieutenant Lockwood, in which the point farthest north was reached. The third was to the west, in the interior of Grinnell Land, by Lieutenant Greely. In the first expedition, which consisted of Sergeant Rice, Dr. Pavy, and Esquimaux Jens, the party, after visiting a couple of caches that had been previously deposited along the shore, left the land and travelled in sledges over the frozen ocean, with the object of getting as far north as possible. The thrilling incidents of the journey were carefully noted and most graphically described by Sergeant Rice in his diary. Nothing can more clearly portray the difficulties and dangers that beset Arctic travellers. The narrative is here given as found in the diary taken from the unfortunate explorer's dead body:

"We travelled from floe to floe, through the bursting walls of ice, slipping and falling on the slippery and uneven footing at times and struggling in soft snow at others; extricating the dogs that got caught up in the hummocks, and cutting with



THE AURORA BOREALIS AND NATURAL ARCH IN THE ARCTIC REGIONS.

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axe through the most difficult passages; raising the loaded sledge over icy obstacles and lowering it—with insecure footing—on the other side. Then again we would stumble into treacherous snow which had crevices and fissures, and from which, standing thigh deep, we had the greatest difficulty in extricating the sledge and landing it again on hard ice. We travelled over all the ground twice, it being impossible to move at all with more than half our load; and the hopeful anticipation of reaching at last the eighty-fourth parallel, that buoyed us up when Cape Sheridan was left behind, had given way to a keen appreciation of the fact that if four miles per day could be made it would be all we could expect. This would place us at the highest latitude ever attained—for only twenty-five miles of ice lay between us and Markham's farthest—and we had twenty days' rations still unconsumed; but the value of our trip was fast depreciating when we reflected that the difference between the highest point we could reach and that already attained could give us little expectation or hope of unlocking any additional secrets of this mysterious sea.

"We were at all times so beset and surrounded by hummocks that a view of even the shortest distance could only be attained by scaling a paleocrystic berg. After every short advance of perhaps fifty or seventy-five yards we would seek an elevation to ascertain where next an opening occurred. Often Jens, descending from an icy pinnacle, would turn to us, and, withdrawing his hand from the mitten and holding it palm upward, would extend his separated fingers and shake his head in a hopeless manner. Never, in all his existence in the land of desolation, had his eyes met such a view. Our observations from different points soon convinced us that advance directly north from Cape Henry was impossible, but the route across James Ross Bay toward Cape Hecla appeared to be better.

"At 3 A. M., April 22d, after a dreary night—during which our sleep was disturbed by the howling of the dogs as they crowded against the tent for shelter from a strong southeast wind that was blowing—we aroused and prepared to start. The high wind of the night was followed by a strange bewildering morning, the atmosphere in an indefinable condition, which destroyed shadows and distorted heights and distances in a strange manner. The way appeared smooth until our

stumbling, uncertain movements and false estimates of distances proved that our eyes could not be trusted. We carefully advanced—the conditions gradually becoming more favorable—until, as we neared the shore at Cape Hecla, Jens cried out: 'Emerk!' or, water ahead! We paid no attention to his remark, which we supposed referred only to some tidal crack or local affair, and were soon astounded to see before us a belt of open water extending the whole line of coast from Hecla to Henry, and also as far as we could see toward Cape Columbia. To the north also there was an open space of water indicated by the heavy water clouds that hung over the place. The water in front of us was at least half a mile wide, and ice of considerable weight and draught was sailing toward Cape Henry with the tide. The doctor, by planting sticks and taking bearings on the land, soon proved that the floe was pivoting and swinging from the shore.

"As usual, we had only half our effects on the sledge. We deposited these and returned to our camp for the others. Reaching the open water again, we found it had widened. After watching for some time in hopes of a favorable change in the movement of the ice, we decided that our only chance of getting off the floe was at Cape Joseph Henry, where, from our distant view, the ice appeared to touch the land. With light sledge, selecting only our most valuable effects—or rather those most necessary to our preservation—we started for the cape, and by a very forced march arrived near there at half-past four P. M. to find the water extending around Cape Joseph Henry and also to the northeast as far as we could see. We could do nothing more in any direction, and, this part of the floe appearing most likely to connect itself with the land, we concluded to make it our headquarters and keep in readiness to take advantage of the first chance for landing. We melt some ice to quench our thirst, feed the dogs, and then select the most substantial-looking part of the floe—near the edge—where we can be close enough for a dash ashore should opportunity offer, and at the same time safe from the possible breaking up of the margin of the ice. It next occurred to us that our near future might be a stay of months on the floe, in which case all our provisions would not be too much. The doctor and Jens then started to return to the northern end of our track at Cape Hecla to bring that which we had abandoned. Two only were required to go

over the broken road; in fact, for all of us to go would reduce the chances for an occasional ride on the empty sledge going out. The writer was at the time rather heavily handicapped with a hand which had received a recent severe cut, and stayed behind. As it was necessary that a look-out should be kept, I was to get some rest, so as to go on watch on the return of my companions. They left me at 7 P. M. The weather was then calm and pleasant. I had no shelter (the tent was part of the load for which they had returned), but as soon as I could give up the contemplation of our rather unpromising surroundings I crawled into my sleeping-bag, which I laid on the ice under the lee of a hummock.

"When I turned in the sky was fair, with the exception of the heavy water clouds that hung to the north and west. I do not know how long I slept, but was awakened by the snow drifting in the mouth of my bag. I dragged myself out and found it snowing and drifting violently. The wind, which was evidently increasing, was from the north, and it at once occurred to me that the storm was local, originating in the water clouds that hung over the belts of water. My first step was to look up our traps, so that no article might be blown away or covered up. The small and light articles I tied to the heavy ones. I then looked about me, and admit that I thought there was cause for alarm. The snow was falling thickly and accompanied with a blinding drift off the ice, so that to windward I could see only a few yards. In the opposite direction the dark frowning front of Cape Joseph Henry loomed up through the storm with an awful and imposing appearance. Wishing to know if the pack had neared the shore, I clambered up the fringe of hummocks on the edge of the floe, and saw that although the belt of water separating us from land had diminished in width, it still formed an impassable barrier, showing up in inky blackness through the storm. I could not see far, but could follow its dark outline some distance with the eye in the direction of Conical Hill and to the eastward, where it was lost in the storm, which enrobed everything in a white sheet.

"I became very apprehensive for the safety of the doctor and Jens, as well as thinking my own situation rather critical. They might become lost in the storm and thus separated from me, which might be a state of affairs worse for them, as the pack might be breaking up and leave them cut off both

from the provisions they had gone for and those with me. The observation I made that the ice was moving out of James Ross Bay did not add to my peace of mind. This was certainly the case, as the shore to the south around the cape was opening up gradually. I could do nothing but hope that the storm was local and would not be of long duration, and that my unfortunate companions might not go astray before it ceased. Being now about as cold from standing in the storm as I could very well bear to be, I emptied the snow from the sleeping-bag and arranging the flap so as to keep out as much of the snow as I could, I crawled in but was truly miserable; the snow was driven with such force as to effect an entrance through the smallest openings. That which had entered at first, melted and then froze around my face and neck; more drifted in, and, added to the physical discomforts, my anxiety was too great to admit of rest. Toward morning I fell into a doze. Occasionally looking out, I found the weather still stormy but improving.

"At a quarter-past four A. M. I heard the dogs barking and turned out to find my comrades safely returned. They had been so fortunate as to reach the provisions and to start to return before the storm had attained a sufficient height to prevent them. After that the wind was in their backs, and the sagacious dogs faithfully following the tracks back, enabled them to travel with greater celerity than could be expected under such circumstances. They had had a very hard time, however, and were completely tired out. We erected the tent and prepared a meal, after which they turned in to sleep while I took up a position on the top of one of the hummocks at the edge of the floe. The morning had turned out a beautiful one after the storm, which ended as quickly as it had begun. For some time I could note but little change, but was convinced that the pack was moving out of James Ross Bay, as the land was opening up to view around Conical Hill, and Cape Henry was presenting a different phase. After a few hours I was startled by the grinding, crushing noise of the ice in contact with the shore or ice-foot some distance to the west, inside the bay. It was evident that the pack had swung so as to touch the land and I instantly awakened my companions. They, poor fellows, had not been long asleep, and I am sure that nothing less than the intelligence that there was a chance for escape would have induced them to over-

come their weariness. We repaired again to our outlook, and after concluding that it was the ice and land, not ice and ice, which were in contact—the pack, so far as we could see, was still unbroken—we hastily made preparations to land before the opportunity was lost, if there was any.

"We quickly gathered up only what was necessary, leaving tent standing, with provisions, clothing, alcohol and dog-food, taking only sleeping bags, cooking apparatus and the chronometer and sextant. We thought there might be a chance to return for our other property, even if we could get ashore, and perhaps the contingency which we entertained as most likely was the probability of our return for a longer wait. The thundering noise of the grinding ice did not promise a very good portage. Jens, a little bewildered, drove rapidly in the direction of the sound, which appeared to be from a point about a mile inside of Cape Henry. As we neared the place the terrific noise of the grinding pack increased so that it was deafening, and our hurried remarks had to be shouted in each other's ears. Drawing near to the edge of the ice we found it undergoing a terrific pressure. The whole immense pack was moving steadily and perceptibly out of James Ross Bay, and at this point it was forced with tremendous weight against the lofty ice-foot, which similar causes had erected or strengthened for years. The ice-foot was forty or fifty feet in height, presenting a rugged front of immense blocks of ice cemented together, and its thousands of tons of weight could only have been forced up in such a manner by the mighty pressure of a frozen sea in motion. As we looked the edges of the floe would break, where weak, against the ice wall, and the pieces forced upward would be kept in motion like jugglers' balls for a while and then tumbled down into the narrow water space farther on where the floe did not touch the land, or landed on some ledge that gave them lodgment. To cross amid this commotion appeared very dangerous; but would we ever have another opportunity?

Our consultation was carried on in shouts and pantomime. We drew near a point where it appeared comparatively easy to scale the ice-foot on the other side, and where the falling debris of ice could be perhaps avoided. To test the feasibility of the passage, one of us dropped down to the lower level of broken ice that was held together by the pressure, and passing almost completely over, returned quickly. Standing

below, I assisted the dogs down as they were forced over—much against their will—by the doctor and Jens. Then the doctor, exhibiting great strength, lowered the sledge, with its light load, to the same level. Jens appeared to have lost his head. The dogs stood trembling and would not move. I took Redeye, the leading dog and the first to cross bad places, under my arm and tried to drag the others along. The doctor was pushing the full weight of the sledge and Jens was urging the dogs. The latter could not keep their traces from being caught upon the ice and I dropped Redeye to clear the lines. The intelligent brute had now gained confidence and began picking her own way. I next seized Howler, a dog near at hand, and in this way—the doctor propelling the sledge from behind and Jens and I clearing the lines and dragging the dogs—we succeeded in reaching the other side to a ledge that gave me a secure footing, with the dogs all around me, but the sledge with the doctor was still on dangerous ground and no time was to be lost. I had an open knife in my teeth with which to cut the dogs clear should they become inextricably entangled, and it now came in use in clearing the lashing of the sledge. Jens unloosed the dogs, and, pulling them past me, they filed one by one up the slippery steps which the rocks and projections of ice in the wall afforded. From the top the animals looked down on us with scared faces, some of them whining piteously. With great difficulty I followed them, but when part of the way up I dislodged a large piece of ice which, striking me in the stomach, carried me sprawling to the lower level, but fortunately not falling on me.

“Another attempt was more successful. I carried the seal-skin thong, and, reaching the top, pulled up, one by one, the different articles that comprised our load and which the doctor and Jens made fast to the other end. They next, after all the load was safe, fastened the line to the sledge and joined me on the top of the ice-foot when the sledge was pulled up after them. It was ten A. M. While crossing we were so absorbed as not to notice the motion of the ice, but I think it must have stopped swinging for a moment, held by the pressure of the pack, as we were strangely free from the falling blocks which were in motion when we started across. Be that as it may, our passage was very propitious, for as soon as we could look about from our new and safe vantage ground we found the

pack still moving out with a great noise from the terrible grinding and friction. It appeared to touch only at one point and a short distance in the bay. At Cape Henry's outward point we could see the open water boiling and eddying with the tide which sweeps around this prominent point with great rapidity. We knew the appearance of the particular floe on which we had encamped, and soon got a view of our tent, but it was much farther out than we expected. The swinging of the great pack was carrying it out quite rapidly. Notwithstanding our safety, it was not pleasant to see our only shelter, and with it all our provisions, equipments and hopes of reaching the 'highest,' receding from our view on the frozen ocean.

"It was a great disappointment. We had succeeded in advancing our provisions and outfit to a point which promised us at least the satisfaction of attaining a higher latitude than ever before reached. Of course this would have been but a barren victory, for we knew that the terrible character of the ice before us would not permit a sufficient distance to be made to solve the question of presence of land to the north, and we knew that our experience would only add to the opinion of our predecessors—that the frozen ocean cannot be traversed by sledges, and of course not at all. Our hardest work was over, the coldest temperature past, and to be stopped so near the end of our journey was not pleasant. When, however, we looked down on the seething black water that separated us from the field of our labors we could not deny that we were fortunate in escaping when we did. We have nothing more to do with an attempt to get north; nothing remains but to return to the station. So states my sledge journal, and we looked about for a passage around the cape. We found it practicable—very rough, but our sledge was now very light, and it was better than going up the bay and crossing Fieldin Peninsula.

"Satisfied with the outlook, we returned to the sledge, melted some ice, and hitching up started for View Point, where our first cache of provisions was, and which we must reach before we could get a meal. We arrived at View Point at 11 P. M. The temperature was 49° at the time, and in fact the weather had been comparatively warm after the open water occurred. This made our first sleep in the bags without shelter very pleasant. Next day, April 24th, we made another long step

homeward. The ice seemed fast in Marco Polo Bay, so we started across for Harley's Spit. It soon began to snow thickly. We feared losing our way in the blinding drift, and camping on the ice was out of the question. The wind in our faces was so biting that we could hardly advance against it. The dogs could with difficulty be prevented from turning around. Our progress was slow, and I cannot recollect having had a more difficult march during our whole trip. After ten hours of such travelling we reached our old camping-ground at Harley's Spit. On the evening of April 26th we were again at our snow-house on Lincoln Bay, our old depot. We did not find the ice in the straits disturbed after leaving Black Cape. We found the snow-house drifted full, which gave us some trouble to make it habitable. We spent the 27th until evening in wandering about Lincoln Bay and looking for a passage in the interior which Dr. Pavy thought would connect with the valley of Wrangell Bay. At half-past eight Jens had harnessed up, and we started along the ice-foot until we struck the dry water-course, and then turned up its bed toward the interior. We went through a narrow pass which opened into another broad valley surrounded by high, frowning hills. The sun shone out brightly at midnight, and the temperature was pleasant for travelling.

"Travelling along next morning, we fell in with a herd of musk-oxen. They were very wild, and, apparently taking our dogs for wolves, they galloped off at great speed. As we advanced, we found the water-course and openings all trending to the interior and no outlet toward the shore. Our backs were toward the coast, and as yet we could see no opening toward Wrangell Bay valley. After travelling about nine hours we halted, left Jens with the dogs, and walked ahead some distance to reach an elevation for a better view. Finding no encouragement to advance, we came back to the sledge tired and footsore, and turned in the sleeping-bags, over which the amorous dogs made love and fought all night, making sleep impossible, although the temperature was pleasant—only $6\frac{1}{2}^{\circ}$ below zero. We started back to Lincoln Bay in the morning, so as to follow the coast line from there home. In passing the place where the musk-oxen were seen, I noticed that the vegetation was quite abundant for that region. There was considerable tuft grass, and from what could be seen I am convinced that the musk-oxen had

not migrated, but wintered here. There was much snow removed, as if in grazing. We arrived at Lincoln Bay on the 29th, where we fed the dogs for only the second time in five days. In the evening of the same date we were again on the way home, following along the coast line. We did not find the ice disturbed at any place after leaving Black Cape. As we anticipated, the disruption was at the northern entrance of Robeson Channel, and bordering on the Polar Sea. The ice in the straits remained intact, because more landlocked, held between the two shores. On May 1st we were at depot B, near Cape Beechey, and were able to learn something of the movements of the other party by the notes left in the record-book by the travellers passing through.

"Next day, after six hours' pleasant travelling over the well-beaten track between depot B and Fort Conger, we arrived at the latter place. As we neared the station, on which the sun was shining brightly, with the Stars and Stripes waving gayly over it, we considered it very cheerful in appearance, and contrasting favorably with its desolate look when last we saw it. In fact, the old station always looks inviting to returning travellers, although, as a human habitation, it may not be either elegant or commodious. We found the quarters almost deserted. The Greenland party was still out in the field, and the commanding officer, with a party of three, had started a week before for the interior. Of the officers, only Lieutenant Kislingbury was at the station, Israel and Gardiner of the observers, and five of the working party. A breakfast of delicious musk-ox steak, washed down with a bottle of wine, made us feel at home again. We could not have procured the same viands in civilization that morning—our appearance was too much against us. We should have passed for tramps. With noses and cheeks scarified and peed by the frost, eyes red and swollen with incipient snow-blindness, hair unkempt, and beards half grown and bleached nearly white, we were not lovely to look upon. Looking over the records of the temperature at the station during our absence, we found that the maximum for March was -8.0 ; minimum, -46.6 , and mean, -29.9 —not so cold as was observed in the field. The mean temperature for April was -8.6 ; maximum, $+13.9$; minimum, -42.1 . Mercury froze for the last time on April 3d, and rose above zero for the first time on April 8th, making 160 consecutive days during which



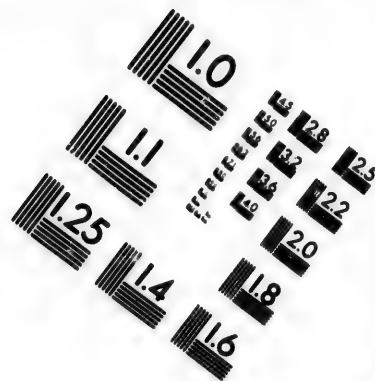
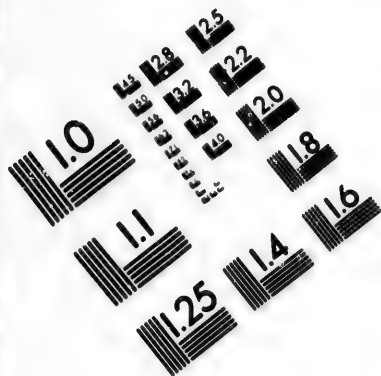
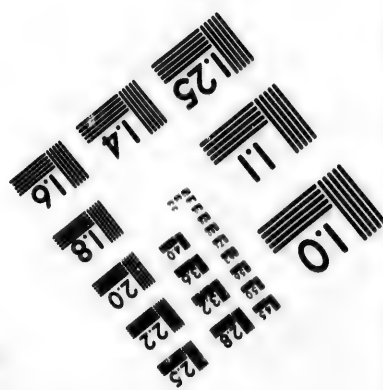
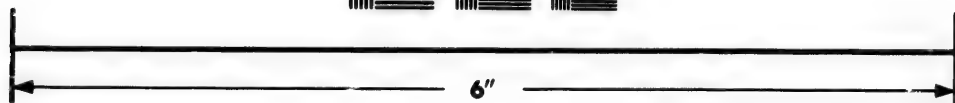
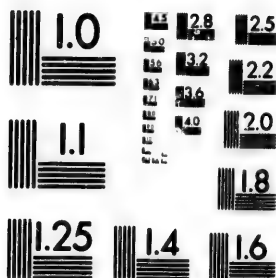


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the temperature was below zero. The weather at Fort Conger was now beautiful, and the dogs lay basking in the sun, enjoying their well-deserved rest. The travellers were also enjoying the change of life which returned sledgers only can appreciate. Never did our beds seem softer, our fare so excellent, or a bath so welcome."

The most important of the undertakings by exploring parties from Lady Franklin Bay was the journey of Lieutenant Lockwood to the north, along the coast of Greenland. In it he attained at Lockwood Island the highest point of the globe yet reached by foot of man, and looked off on the frozen ocean beyond for some twenty-five or thirty miles more. No land was visible to the north or northwest, but to the northeast could be descried a cape jutting out from the coast, which will probably prove to be the northernmost point of Greenland. The expedition, after incredible hardships, returned to Fort Conger on June 1st, 1883, after an absence of two months. The North Greenland sledging party, as it was called, were only turned back from proceeding farther by the drifting ice of the Polar Ocean, after they had narrowly escaped being carried out to sea. An account of their adventures and discoveries is given by Sergeant Rice in his interesting diary. The writer says he is indebted to Sergeant Brainard, who accompanied Lieutenant Lockwood, for most of his information, which Sergeant Brainard's admirably kept sledge journal amply afforded. "In fact," says Sergeant Rice, "the record of many intelligent observations and interesting details are lost sight of in this account, in which I confine myself to a record of the principal features of their experience and a comprehensive connection of the same. To do this, I have taken notes from the sledge-journal, and have been assisted by the gossip of the sledgers, with which the quarters were of course rife after their return." The narrative is here given in Sergeant Rice's own language, than which none could be more appropriate:

"On April 3d the main party, bound for North Greenland, left the station. They pulled out of Shift Rudder Bay on the evening of the 5th, intending to travel by night and sleep during the warmest part of the day. The outfit consisted of one dog-sledge, with team and driver (Fred), and four Hudson Bay sledges (toboggans). To the former Lieutenant Lockwood and Sergeant Jewell were attached, while the

Hudson Bay sledges were manned by Brainard, Ralston, Saler, Biederbeck, Elison, Fredericks, Henry, Whistler, Lynn, and Connell. Two of the sledges were pulled by three men each, and two were drawn by two men each. The party followed the northern Bend of Shift Rudder Bay until Cape Beechey was reached, after which they struck across for the Greenland shore. At the end of the first march they went into camp on the ice, erecting their tents. This day's halt was hardly a rest, for they found their sleeping-bags frozen into the semblance of sheet-iron casings. Only by gradually introducing their bodies to thaw out the bags by degrees could they envelop themselves. Their position on the ice a few miles from shore was very exposed and unsheltered. The temperature was -47 degrees. Sleep was an impossibility to most of the travellers. Morning brought its changes. Henry, afflicted with rheumatic pains, was compelled to return home, and Connell, with a frozen foot, was carried in the dog-sledge to the shore to follow him. The main party kept on across the straits, Jewell taking the place of one of the men who had returned, and the place of the other being supplied by 'doubling up.'

"April 7th.—They are still toiling over the rough highway of the straits, the travelling at most times execrable. Struggling through places where the ice was of the worst description, where their sledges were continually being overturned, alternating with patches of deep snow, they found themselves on a paleocrystic floe, where the conditions for travelling were much more favorable. Here they again camped. The wind was blowing violently; temperature -29 . Cooking under the circumstances was very difficult, as the small tent, violently agitated by the wind, precipitated a constant fall of the rime that was condensing on its sides and roof, damping the spirit lamp and the spirits of the cook. The inmates of the sleeping-bags were not exempt from the inconvenience of the miniature snowstorm, for it showered upon every barefaced exposure and insinuated itself in the mouths of the bags. At 9 P. M. the party is again under way. A snowstorm coming on during the night had so increased as to force them into camp at 2 A. M. of the 8th, before completing the allotted number of travelling hours. Biederbeck and Saler, drawing a toboggan, became detached from the main body, and attempting to follow the tracks of the dog sledge lost sight of their compan-

ions. The storm coming on with blinding drift hid them from their surroundings. The main party camping, Brainard started to look them up.

"They were soon found on the same floe with the encampment. Brainard's arrival was most opportune. They were making preparations to pass the day as best they could. A hole was already burrowed in a snowbank which, with a rubber blanket held at their backs, was their sole protection against the storm. The waifs were soon guided to their companions. The storm increased so that Lynn's tent, only ten yards away, could not be seen from the other tent. The temperature in the tent was -9 while the meals were being cooked. All day the storm raged, at times the wind blowing at the rate of sixty miles an hour. On the 9th the party are still stormstayed, and their misery must be imagined. The drifting snow had so pressed in the sides of the tents that the travellers were curtailed of the small space which their covering generally afforded them. The wind appeared to be from the southwest. Later it veered, and at 8 p. m. had sufficiently moderated to admit of a start being made. The temperature had risen and stood at zero. This was the first night of the season on which the travellers saw the sun above the horizon at midnight. They reach Cape Sumner on the 10th, and halt at the boat camp.

"This is the camp occupied by the party from the *Polaris* who attempted to get north by boat. Their abandoned boats and tent still remain as left when the attempt was given up. Our party found the location a very uncomfortable place. At 7 a. m. their tents were erected, but were soon after blown down and the ridge pole of one broken. Their shelters were again raised, and the sides of the canvas weighed down with provisions. At 5 p. m. the tent occupied by Brainard and his companions was again blown down. They began to make an excavation in the snow, but it was six hours before it was suitable for occupancy. In the confusion attending the collapse of the tent the allowance of alcohol fuel for cooking the evening meal was spilled, so the cold travellers went supperless to bed—or to bag. At a quarter to 10 p. m. Lieutenant Lockwood arrived with the dog team. He had separated from his party on the first morning of the storm, and had been snowed up for two days.

"April 11th.—The party occupied three tents, Lieutenant

Lockwood, Jewell and Esquimau Fred in one and the main party occupying the two larger ones. During the time Sergeant Brainard and his tent mates were unhoused, although sincerely sympathizing with their neighbors, Sergeant Lynn and his companions did not refrain from some badinage at their expense. An old proverb was aptly illustrated, however, when this morning their canvas was lifted bodily from its fastenings and carried some distance, leaving the astonished occupants completely exposed in their sleeping-bags. It was now their turn to dig in the snow for several hours. Life in these dug-outs in the snow was almost the acme of misery. The atmosphere soon became unwholesome, breathing was difficult and matches would hardly burn, so completely was the air mephitized. The sleeping-bags were damp from the melting of the snow which had been driven into them. One of the men fainted and another was suffering very much from the effects of the cold, and most of the party were afflicted with frozen or burned fingers. The outlook on the morning of April 12th was not very encouraging for the success of the party. The weather had indeed improved, and they were enjoying the pleasant temperature of only -3 , but they found that their Hudson Bay sledges were about played out. They were totally unfit for such work. The tents were used up, and the sleeping-bags uninhabitable in the condition they were. Two of the men—Whistler and Biederbeck—were sent back home because of their illness. On this day the party go down the coast to Gap Valley for the cache placed there by Dr. Pavey in March, and return to the boat camp after seventeen hours' continuous work.

"The 13th gave the travellers very pleasant temperature, and the sleeping-bags were exposed to the sun to evaporate some of the moisture. One of the Polaris' boats was righted and placed in a position to contain the provisions to be left for use when returning. In the afternoon Lieutenant Lockwood started back to the home station with dog team and driver to procure a new sledge runner. Main party under Sergeant Brainard go to Cape Sumner, south, for the provisions there; camping-place still at boat camp. By April 14th the tents have been repaired and are again occupied, but also again thrown down by the gusts of wind which appear to have been inseparable from this locality. The sudden gusts of wind would draw down the rocky declivities, detaching

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stones and masses of snow in such a manner as to raise their apprehensions of even greater misfortunes than the discomfort the cold wind caused them. Brainard notes an especially remarkable sight he witnessed when a large body of snow, starting from a high elevation among the rugged cliffs, came pouring down like a cataract of foam. It was a perfect snow cascade, leaping from rock to rock like a mountain stream. Next day is spent at the boat camp making preparations for starting north from this point.

"Lieutenant Lockwood returns from Fort Conger and brings some small articles of clothing and letters from their comrades. The latter were very welcome, and served to amuse and interest the unhappy travellers more than one who has not been similarly situated can understand. On the 16th the wind is strong. The Hudson Bay sledges are repaired; one completely worn out is abandoned. This increased the weight on the others, so that the weight on one sledge was at least two hundred and twenty pounds to a man. At twenty-four minutes past 10 p. m. the party have pulled out from the boat camp and are plodding across Newman Bay, headed for the 'Gap Valley'—not 'Gap,' which is south of them. April 17th finds them in the 'Gorge,' which they entered from the Newman Bay side and by which they intended to travel overland so as to cut short the projection of land at Cape Brevoort. Temperature at midnight is -9 , light snow falling and the sun above the horizon. The 18th was a very trying day, and every one was completely exhausted after the march, which was attended with worse travelling than they had yet encountered. The snow was lying deep, and over it there was formed a crust just strong enough not to bear. Through this the feet and sledges broke at every step.

"April 19th.—The travellers are still tramping overland toward Repulse Harbor. The Hudson Bays are manned for thirteen consecutive hours. It is a significant fact that the dog sledge could travel over the same ground in four hours. On the 20th only about four miles were made. The travelling in the valleys, the coast not yet reached, presented a new feature on the 21st. The deep snow was succeeded by patches of bare ground and gravel beds over which the sledges could only be dragged by standing pulls. The following day they enter Repulse Harbor by the valley through which the watercourse empties, and grope their way down the

dry gorge to the bay with little knowledge of their whereabouts or surroundings.

"They stumbled blindly on until the nature of the travelling indicated that they were once more on the coast or an arm of the sea. The storm forced the party into camp. To go into camp does not, however, always secure rest or comfort to the Arctic sledger. Our little band were busily occupied for two hours before their tents were sufficiently secured to insure their not being carried away by the storm. Then the trials of the cook—a miniature snowfall showering on his head, down his back and over his lamp and utensils, and these latter burning the hands whenever they are touched, until the sputtering lamp raises them to a higher temperature. I cannot do better than transcribe from Brainard's journal an entry made on this occasion: 'Shorty' is cook. After the tent is closed up he finds that the fuel (alcohol) is outside under a huge snow-drift, which covered the side of the tent and completely closed the entrance, making it necessary for him to tunnel his way through to the outside. Here new obstacles intervened: the alcohol is four feet under the snow and the shovels all covered up. But he manfully digs away with his hands, occasionally stopping to utter anathemas on Arctic work generally.'"

On April 24th the travellers are winding their way along the shore to the northward, with Repulse Harbor behind them. On the 25th Fred, the dog driver, is sick and unable to take his accustomed place behind the traces. He guides the dogs by wielding the whip from the top of the load, on which he has been placed. The party is near Cape Stanton. The travellers encamped to-day on a more northerly point on the coast of Greenland than had ever before been attained by Americans. They were enjoying fine weather, the indirect effects of which are indicated by a humorous allusion in Brainard's diary to Fredericks' proficiency in snoring. I do not think the circumstance would have been noticed at any previous stage of the journey.

On April 26th the cache of provisions left by Lieutenant Beaumont is discovered and found to contain forty rations in good condition. The red heart rum was especially well preserved. The travelling was good and the prospects brightening. I find Brainard extolling in an unqualified manner the maps of the coast as laid down by the British expedition.

April 27th.—Skirting along the coast the party passed Hand and Frankfield Bays. Cape Bryant, their next objective point, stands out bold and inviting, apparently but a short distance ahead. A cynic would say, however, had he ever travelled in the Arctic, that with the exception of a woman nothing is so deceiving as an Arctic landscape. Here distances cannot be very correctly estimated by the eye. Our travellers stepped out hopefully, but hour after hour they plodded on without perceptibly diminishing the distance. Quite tired out, the camp is at last reached. The temperature is -15 . The indefatigable Fredericks, affectionately called "Shorty" by his comrades, freezes his fingers while lashing up the broken ridge-pole of the tent. The outlook of the party was now becoming very encouraging, about twenty-five miles having been made in the last two days and the travelling ahead apparently very good. To the northward Cape May and other prominent points presented a fine view. This day a small covey of ptarmigan were fallen in with and Esquimau Fred killed five. The 28th was passed as a day of rest, preparatory to the final dash of the advance party and the return of the supporters. The clear weather afforded the party a fine view of Cape Britannia and St. Andrew's Bay, from which latter place the English party were forced to return.

April 29th the party separated, Lynn, Jewell, Ralston, Eliason, Fredericks and Saler starting back for Boat Camp, and Lieutenant Lockwood, Brainard and Esquimau Fred continuing on to the north. With the supporting party we have now nothing to do. They had performed their work well and faithfully through the worst, and deserve the highest credit for it.

We will now follow the fortunes of Lieutenant Lockwood and his companions. After the good-byes and handshakings were over—good-byes that in this case had the appropriate accompaniment of tears from at least three of the party who were greatly affected with snowblindness—the dogs were directed across St. George's Fiord. They had rations for dogs and men for twenty-five days, which, with moderate good fortune, should enable them to trace a great distance of coast line and place them at a far higher point than had ever been attained on the Greenland continent. The party camped at one A. M., dogs very tired. Brainard is suffering

from snow-blindness and essays to find relief by poulticing his eyes with tea leaves. Snow laid so heavy that two loads were made and ground travelled over twice. May Day under such circumstances! The weather is very warm and at midnight the temperature is -27 degrees, accompanied by wind. This was the first occasion on which the temperature was at the freezing point of water in the tent since they started out. The snow becoming worse as they kept in the bay, Lieutenant Lockwood decides to head directly for Cape Britannia instead of Cape May, as at first intended. Lines of ice hummocks skirted the fiord at intervals.

On May 3d, when near Cape May, Lieutenant Beaumont's farthest, they found that a tidal crack of considerable extent had opened up. This offered an opportunity for deep sea sounding, of which the travellers at once availed themselves. Four hundred and twenty-four feet of line, 240 of sealskin lashing and some rope—in all 820 feet—was lowered with the lead. No bottom. The whip was then added, but the weight failed to reach soundings. In pulling up the line it parted and all except the whip and seventy feet of rope was lost. On May 4th our travellers are nearing Cape Britannia, their Ultima Thule heretofore. They have already passed Lieutenant Beaumont's farthest. At seven P. M. Cape Britannia is reached, and the American flag enthusiastically raised over land never before trodden by man. Lieutenant Lockwood now made his first observations for latitude and longitude, and found, as near as he could compute it, that the position given to that point by the Nares map was correct, although the expedition did not reach the place. The travellers ascended the cape, which they found to be about 2,700 feet high, and affording a fine view. Britannia appeared to be an island, and was not the termination of Greenland, for they could see unknown land extending to the northeast. Lieutenant Lockwood, inspired with an explorer's ardor, indicated to the driver, Fred, a prominent point on the new land to the north, and promised him a reward of 100 kröns—currency with which Fred was familiar—if he succeeded in getting his dogs that far.

After leaving Cape Britannia the travelling was good. On the 5th the party heard the grinding of the ice in the distance. While lashing the sledge Fred told Brainard he thought the ice outside was moving. A tidal crack 100 yards wide was

seen. They travelled inside of this over the embayed or land-locked ice, which did not appear to have been broken for many years. May 6th the dogs were so ravenous that they actually chewed up the wooden casing of the thermometer. This was showing almost as much contempt for science as did "King," of our team, when he appeared to mistake one of those ordinary thermal instruments for a hygrometer. Temperature, +6.



LIEUTENANT JAS. B. LOCKWOOD.

Our travellers were now enjoying the satisfaction of following a coast line never before seen. New points were reached from time to time. The coast was formed of a rapid succession of projections and capes, with inlets and bays of more or less depth intervening. A prominent point, which they called Black Cape, was

passed this day, and they camped on the morning of the 7th at a smaller point a little farther on, which was dubbed Rabbit Point, because of the killing of a hare as they were going into camp. Animal life did not appear less abundant here than farther south. Traces of musk oxen, not fresh, and two ptarmigan were seen. On the 8th the little party passed the mouth of another fiord and arrived at Distant Cape.

[These names are descriptive, being some suggestive titles which have since, in the projection of the map, been supplemented by a more lasting appellation which I shall add, parenthetically, to the former.]

We will not follow the explorers closely at this part of their journey, but state that from the 8th to the 13th of May they continued to advance along this new coast line, reaching new points at every march and sometimes passing several in one day. Dome Cape (Cape Nijkander), then Cape Mohn, were passed—the last mentioned is in latitude 83 deg. 10 min.

They then crossed a large fiord (Meiggs) and reached Cape Storm (Hoffmeyer). The coast line trended to the northeast and each cape, until passed, completely hid the next from view. The travelling was very good; their load was decreasing at every march and rapid progress was being made each day. From Shoe Island (Mary Murray Island) they started on the 13th, and in one long march—Shoe Island is in latitude 83 deg. 19 min., longitude 42 deg. 21 min.—passed "Wild Fiord," Hummock Cape (Cape R. I. Dodge), Weyprecht Inlet, "Pyramid Island" (Brainard Island), and reached their farthest at twenty-five minutes to twelve P. M. of the same date. It was snowing hard at the time and a strong wind was blowing. Lieutenant Lockwood here decided to proceed no farther, but, after stopping long enough to take a series of observations to determine his position, to start on the return journey. The party had made six marches from Cape Britannia. It was thirteen days since they had left Cape Bryant, and as they were provisioned from the latter point with only twenty-five days' rations, half or more was already consumed. At 10 A. M., May 14th, the storm ceased and the observations were taken, after which a cairn was built and some specimens of the vegetation, chiefly lichens, and rock collected. To obtain observations for equal altitudes it was necessary to remain over till the next day, the 15th.

After taking said observations Lieutenant Lockwood and Sergeant Brainard ascended the highest elevation on the cape they had reached to obtain a view to the northward. They attained an elevation of 2,600 to 3,000 feet in height, and could see to the northeast, distant about eight miles, another cape (Kane). The intervening fiord (Conger Inlet) appeared to connect with the one to the south of them (Weyprecht), thus making of the land on which they stood an island. Back to the eastward of them a mountain (Mount Howgate) about four thousand feet high intercepted the view. Farther to the northeast, beyond Cape Kane, could be seen another point of land. It appeared to be distant about fifteen miles. This has since been named Cape Robert Lincoln, and the opening, between it and Cape Kane, Hunt Fiord. The explorers could see nothing more to the northward of this last point. The horizon was hazy in that direction, and they are unable to say if the low blue streak they saw in the distance was land or only some atmospheric phenomenon. They incline, I believe,

to the latter opinion—probably a low cirrus cloud or the evaporation from a tidal crack. Should it be land it appears to have taken a direction more directly north than the coast they had discovered. Out upon the Polar Ocean to the north their view was more extended, including, so they think, a range of sixty miles. The ice was of a very rough, forbidding character, offering no chance for travelling, and no land could be seen. Looking eastward into the interior nothing met the eye but a confused mass of snow-capped mountain peaks and hills, the coast badly broken up by fiords.

They now descended to the tent and packed up, after which the dogs were turned homeward. The travellers were now indeed glad to think that every step placed them nearer home, albeit that home was only a rude habitation on the shores of Grinnell Land. A rough reduction of his observations showed Lieutenant Lockwood that he and his companions had reached the highest point on our globe yet attained. The observations have since been carefully computed by Israel, our astronomer, and place the "farthest" at latitude 83 deg. 24 min. north, longitude 40 deg. 46 min. west. It is interesting to know that at this northern point of Greenland traces of animal life were as frequently met with as at any other part of the coast. Tracks of foxes, hares, lemmings and ptarmigan were noticed. The question of whether this coast still furnishes a route much nearer the Pole or ends in the northern extremity of the continent of Greenland at a point not far from that reached by this expedition, still remains unsettled to vex the enterprising spirits of those who cannot rest until their feet have been placed on the northern axis of this globe.

The return journey was monotonous and uneventful. The travelling was, of course, tiresome. The temperature had become long before this very agreeable, but the unpleasant result was that the snow became much softened. On the 21st of May our travellers had Cape Britannia again to the north of them. They found the tidal crack closed and cemented by ice which was strong enough to bear a man. On the 22d, travelling across St. George's fiord, many snow buntings were seen and numerous fox tracks were observed. There was a severe snow-storm here, so thick that a compass was in requisition all the time. This storm was preceded by a perihelion, which Brainard states exceeded in beauty any

of those phenomena which he had before seen. It exhibited beautiful prismatic colors and formed in contact arches and concentric circles. On the morning of the 24th Cape Bryant was reached, and the sledgers found their cache in good order and were able to replenish their stock of provisions, which was so depleted that nothing remained on the sledge except four ounces of tea, half an ounce of onion powder and a handful of cracker dust. The dogs were almost starved, as will appear by the fact that they obtained access to a small quantity of shotgun ammunition and actually gnawed the cartridges—probably because of the grease on the wads—sending their teeth through the metal of at least a dozen of them. At Cape Bryant soundings were taken through a tidal crack about a quarter of a mile outside the cape, and the bottom found at 114 feet. They used the line left on the outward trip. At this time snow-blindness was making it very unpleasant for the travellers. They left Cape Bryant on May 26th and killed another ptarmigan on the way. Four miles south of the cape they found the cache of outfit discarded by Lieutenant Beaumont's party when an attempt was made to cross the straits. On the 27th our travellers changed their moccasins for sealskin boots, the snow being damp enough to wet their feet. They are on the west side of Repulse Harbor on the 28th, and find another cache and record left by Lieutenant Beaumont. On May 29th they are at Boat Camp with the men who were awaiting their return, and the whole party cross the straits and arrive at the home station on June 1st. Two or three of the party were suffering very much from snow-blindness, and during the last march Ralston had to be led.

CHAPTER XXIII.

NEAR THE NORTH POLE.

Animal Life and Vegetation of Grinnell Land—Major Greely's Journeys into the Interior of Grinnell Land—Wonderful Natural Phenomena—A Glacier Bursts—Journalism Near the North Pole—The Arctic Moon—Amusements and Pastimes of the Explorers.

ANIMAL life was abundant, with scant vegetation similar to that met with in Grinnell Land. Traces of hares, lemmings, ptarmigan and snow bunting, and the tracks of a bear, were seen, and droppings of the musk ox as far as twenty miles north of Cape Britannia. Looking to the northeastward from an elevation of about two thousand feet, the land was seen for about fifteen miles, the farthest point, Cape Robert Lincoln, being in about latitude 83 deg. 35 min., and longitude 38 degrees west. Although the weather was unusually clear, no other land could be seen, the horizon being examined carefully to the northward and northwestward. On the 15th they started south, picking up *en route* the union jack and sextant left by Lieutenant Beaumont, of the Nares expedition, during his extraordinary retreat with a scurvy-stricken party in 1875, and, rejoining the three men who had remained at Cape Summer, Newman Bay, the combined party returned to Fort Conger, where they arrived on June 1st, after an absence of fifty-nine days, all in good condition, except that two of the supporting party were snow-blind and had to be led into camp.

Game was abundant, more than one hundred musk oxen being seen, besides hares and birds. From the summit of Mount Arthur Major Greely, who was alone able to make the ascent, was satisfied from the trend of the mountains and the appearance of the country that Grinnell Land ended but a short distance to the westward, and that its coast line must run nearly southwest from the extreme point reached by Lieutenant Aldrich, Royal Navy, in 1876. The sledging season over, travelling by land was almost impracticable, but early in August Major Greely went to Cape Defosse in the

steam launch and found Kennedy Channel perfectly clear of ice throughout its whole extent.

The following is a statement of the game killed by Lieutenant Greely's party in the region adjacent to Lady Franklin Bay during their long stay in the frozen North:

August, 1881—16 musk oxen, 1 hare, 1 ptarmigan.

September, 1881—5 wolves, 10 musk oxen, 1 seal.

February, 1882—7 hares.

March, 1882—1 lemming, 4 hares.

April, 1882—1 fox.

May, 1882—2 lemmings, 3 musk oxen, 5 seals, 1 hare.

June, 1882—1 wolf, 4 lemmings, 18 musk oxen, 1 seal, 11 hares, 17 king ducks, 6 long-tailed ducks, 20 dovekins, 2 burgomaster gulls, 1 Arctic fox, 20 sknas, 5 brent geese, 7 ptarmigans, 7 turnstones.

July, 1882—4 ermines, 10 musk oxen, 2 hares, 3 long-tailed ducks, 19 eider ducks, 1 Sabine gull, 5 Arctic terns, 118 sknas, 27 brent geese, 6 turnstones, 1 sand piper, 14 owls.

August, 1882—2 ermines, 33 musk oxen, 2 seals, 11 hares, 5 king ducks, 6 long-tailed ducks, 7 eider ducks, 13 dovekins, 1 burgomaster gull, 3 Arctic terns, 40 sknas, 37 brent geese, 32 ptarmigans, 54 turnstones, 1 sandling, 16 knots, 2 ringed plover, 2 owls, 1 walrus.

September, 1882—3 foxes, 1 ermine, 1 musk ox, 3 seals, 2 hares, 1 raven, 3 ptarmigans, 1 turnstone and 1 owl.

November, 1882—1 fox and 1 musk ox.

December, 1882—1 seal.

February, 1883—1 hare.

March, 1883—1 ermine and 3 hares.

April, 1883—2 hares and 4 ptarmigans.

May, 1883—3 musk oxen, 2 seals, 7 hares and 11 turnstones.

June, 1883—1 wolf, 2 foxes, 8 musk oxen, 3 seals, 14 king ducks, 27 long-tailed ducks, 1 eider duck, 21 dovekins, 1 diver, 3 burgomaster geese, 12 Arctic terns, 12 brent geese, 15 ptarmigans, 28 turnstones, 8 knots, 1 owl and 1 phalarope.

July, 1883—1 lemming, 3 hares, 8 king ducks, 5 long-tailed ducks, 2 brent geese, 3 turnstones, 2 knots and 1 phalarope.

August, 1883—3 seals, 6 long-tailed ducks, 3 eider ducks, 6 dovekins, 1 brent goose, 1 turnstone and 1 knot.

A summary of the above gives a total of all game killed as follows: 7 wolves, 7 foxes, 8 ermines, 8 lemmings, 103

musk oxen, 19 seals, 57 hares, 44 king ducks, 53 long-tailed ducks, 30 eider ducks, 60 dovekins, 1 diver, 6 burgomaster gulls, 1 Sabine gull, 21 Arctic terns, 178 skuas, 84 brent geese, 1 raven, 79 ptarmigans, 100 turnstones, 1 sandpiper, 1 sandling, 27 knots, 2 ringed plovers, 18 owls, 2 philaropes and 1 walrus.

The above statement of the game found by the Lady Franklin Bay expedition, which was prepared by Sergeant Brainard, is of interest as showing what species of birds and animals frequent Grinnell Land, and at what season of the year the migratory birds return to that region. No game was killed during the months of October, November and



MUSK OX HUNTING IN THE ARCTIC REGIONS

December, 1881; January and October, 1882, and January, 1883, when hunting was impossible on account of the darkness and cold. The solitary musk ox killed in November, 1882, was found by the party which was sent during that month to Carl Ritter Bay, though there can be no doubt that it is resident throughout the year, subsisting during the winter season on saxifrage and the scant grass, to find which it removes the snow with its hoofs. The number of these animals seen disproves the theory advanced by Major Feilden in his paper on mammalia (see "Voyage to the Polar Sea," volume ii., page 201, Nares) "that the number of musk oxen in Grinnell Land is extremely limited," and was well nigh exhausted by the onslaught made by the Nares expedition during the winter of 1875-76.

Soon after the return of Sergeant Rice, Dr. Pavy and the Esquimau Jens, Lieutenant Greely came back to Fort Conger after an exploration of eleven days in the interior of Grinnell Land to the westward of the station. They arrived on the evening of May 7th, 1882. Lieutenant Greely expected to be gone a much longer time and his appearance was a surprise. The following sketch of his discoveries and the adventures of the party is from the graphic pen of Sergeant Rice, as recorded in his diary:

The commander started from Fort Conger on April 26th with the purpose of travelling westward over the country until, if possible, the western coast of Grinnell Land should be reached. He was accompanied by Sergeants Cross and Long and Privates Connell, Bender and Whistler. Cross and Long were supporting, and returned after two days. The party visited the English cache at Stony Point and appropriated such of the contents as they required, and then proceeded up Conybeare Bay. This opening had not been explored by the English and was found much deeper than they supposed. Lieutenant Archer passed the mouth of the bay and has mapped out its entrance very correctly, but our travellers found it to be thirty miles deep instead of ten. At the head of the bay three valleys were found leading into it, but none were practicable for travelling. On April 28th they opened out a new fiord, which they entered and found to be about three miles wide and fifteen to twenty long, running north-northwest. It was surrounded and enclosed by lofty, frowning cliffs, strangely imposing and picturesque. In the valleys before mentioned musk oxen and wolves were seen. Into the fiord, afterward named after Captain Howgate, there emptied a river, on the icy surface of which they travelled some distance before its character was discovered. The ice running together it was difficult to observe where the fiord ended and the river began; but as they advanced the evidences of its being fresh water, and not an arm of the sea, multiplied. They noticed that the water forced up in the cracks was brackish, and gradually grew fresher. Farther on Lieutenant Greely found the stream to be open, with evidences of its having remained so all the year round.

The travelling was now of the finest description. The fresh water from the open channel of the stream inundated the ice that covered the shallower parts abutting the banks

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and over which the party was travelling. This thin sheet of water freezing without any inequalities gave to their icy highways the appearance of a waxed floor or a plain covered with laminated steel. It was almost too smooth, for it was no easy matter to keep the footing. The great reflective qualities of the polished ice also caused much inconvenience from snow-blindness, with which one member of the party (Whistler) was especially affected. But these were slight drawbacks compared with the great advantages they were enjoying. Probably no Arctic travellers were ever so favored as these. The sledges glided over the ice without requiring the least exertion to draw them. In fact, it was difficult to keep in advance of them. At one time the commander judged that four and a half miles were made in one hour. He arrived at this conclusion from counting his steps, which were measured. After meeting with the open water of the stream a few steps to the edge of the ice furnished them with a delicious draught of pure ice water—a boon which no mortal except an Arctic traveller or perhaps a wanderer in the deserts of Africa can fully appreciate.

A small island in the river was next discovered and the source of the river soon reached. It proved to be a large lake, from fifty to seventy-five miles long and about seven broad. It was open at the point from which it fed the river, where the accelerated movement of the water wore away the ice by attrition or prevented it from forming at all. The stream also starting out with great rapidity was open for about three miles, and, as already stated, had the appearance of remaining so all the year round. The depth of the river at its head was three and a half feet, width fifty yards in its narrowest part, increasing to about three miles at its estuary. Along the valley thus drained the party found enough drift-wood, of the ground willow, to serve for fuel. Abundant traces of game—musk oxen, hares and foxes—were seen in all directions, and they were led to believe that these animals had not migrated during the winter. The traces bore the stamp of continuous occupation of the ground, and, as nearly as I could learn, resembled those seen by Dr. Pavy and the writer near Lincoln Bay. Small fish, resembling minnows, were seen at the head of the stream. Lieutenant Greely and his party now pushed on over the lake, following its south side for a short distance. Here the snow was found to lie very

deep and the party found good use for their snow shoes. They soon left the shores of the lake and started across for its west side, having for their objective point the mouth of a valley through which the commander hoped to continue westward.

As they neared the shore, which they reached the next day, they saw that a glacier of great size and magnificence filled the valley and abutted on the lake. On the examination which a closer proximity afforded they found the glacier facing the lake with a perpendicular front of from one hundred to two hundred feet in height, back of which the ice rapidly inclined to a greater elevation, increasing to at least six hundred feet at a distance of only one hundred yards from its face. Farther up the valley it wound its way, receding from view in the dim perspective in milky, undulating folds. The frowning front of this magnificent *mer de glace* was awe-inspiring in its grandeur and dazzling in its beauty. The sun scintillating and glistening on the crystal points, the strange freaks of color that the direct and reflected light made in playing among the blocks and protuberances adhering to the irregular front of this frozen Niagara since the last great segments of ice had fallen away and dropped like a glass mask at its feet, giving to some the appearance of green chalcedony and to others that of pure, transparent crystal, added to the enchanting spectacle. The glacier, which Lieutenant Greely has honored with the name of his wife, was two miles wide at its face. A moraine was formed at the margin of the lake—since called after the chief signal officer—about one hundred yards from the glacier's present face, and proves that in forcing the débris to that position it must at some time have extended that far.

The most glorious spectacle was afforded, however, by the "calving" or breaking away of a portion of the ice. It was a sight which has been vouchsafed to but few. Dr. Hayes was so fortunate as to witness a similar process of nature at one of the Greenland fiords and has left a graphic description of the same. Our party have rhapsodized considerably over that which they now saw, and all agree that no idea of its beauty and sublimity can be conveyed. They were encamped within safe distance and had their attention attracted by the crackling noise which attended the disruption of the ice as the mass—so huge and immense in itself, but so small compared

to the great body of the ice stream—was detached. The noise as the ice in hundreds of thousands of tons came crushing down was immense. The tottering blocks and columns of crystal were played upon by the sunlight, which turned them into masses of flashing silver as they trembled and a cataract of diamonds as they fell. Over the scene of demolition there then arose a cloud of the icy particles which, ascending, veiled the spot. The sun, playing through the sparkling mist, gave to it the most beautiful tints of color, among which a pink, rosy hue predominated.

Our commander, finding that the glacier completely occupied the valley and offered no chance for ascending to its upper surface—the perpendicular front was insurmountable—and also that no other opening to the westward presented itself now, determined to give up his project and return. He started to return with his party on May 3d. Retracing their steps over the river, they found it breaking up; in many places the ice which they had travelled over when outward-bound was broken away. The only episode of interest that occurred on the return journey was the circumstance of Bender losing his companions for five hours in a fog. He had separated from the party to obtain a view from some elevated position, and, a dense fog settling down, he wandered astray. The party arrived at the home station on May 7th in excellent spirits. Their short journey appears to have introduced them into an Arctic paradise not far from our vicinity. It will almost do for the use of those visionary theorists who have accepted Symmes' eccentric, or rather concentric, conception of the polar regions. The farthest point reached by Lieutenant Greely was but sixty miles west and ten north of Discovery Harbor; but the tortuous route makes the distance travelled—so he thinks—300 miles.

In the last days of May Israel and a companion were at the "Bellows" doing some surveying, and killed three of a herd of musk-oxen. When brought in the carcasses proved very light and poor. It was apparently too early in the season to allow the animals a chance to get in better condition. The scanty vegetation was not far enough advanced.

The mean temperature for the month of May at Fort Conger was $+17.41$; maximum, $+33.4$; minimum, $+1.1$. Snow fell during 143 hours. The temperature rose above the freezing point for the first time on May 28th, after 271 succes-

sive days. The new ice on the harbor was found to be still nearly four and a half feet thick on June 1st.

At the time Major Greely made his journeys into the interior of Grinnell Land the relief ship Neptune was struggling with an impassable barrier of ice in Kane Sea.

Later in August Lieutenant Lockwood made two journeys in the launch—on the first to the head of Archer Fiord, bringing back large quantities of game, and on the second he entered Weyprecht Fiord, but was unable to advance far on account of the ice. Much disappointment was felt at the non-arrival of the expected relief ship, with, first, stores, and above all news from home, and many were the conjectures as to the cause of her failure to come; but no discouragement was felt, and feeling a pardonable pride in their achievements of the past year they prepared to attempt even more in the next. The winter passed away more rapidly and pleasantly than would be supposed possible. There was plenty of reading matter. Major Greely and Dr. Pavy delivered occasional lectures, and holidays were celebrated as before. Another feature suggested by Major Greely did much to promote contentment and good feeling. Each man was allowed on his birthday to select the dinner, of which all partook—a privilege which was greatly appreciated and never abused.

Sergeant Rice's diary abounds in evidences of the attempt of the members of the Greely party to enliven each other's spirits during the long periods of desolation at Fort Conger. To judge from his notes and suggestions Sergeant Rice was himself no small contributor to the general amusement. They had a paper, which they printed on the polygraph, called *The Arctic Moon*, and some articles intended for it are found in the diary. Sergeant Rice also translated a French romance for the benefit of his comrades, their increasing interest being evidenced by the decreasing length of the chapters and the great condensation of the latter part, so anxious were they to reach the denouement quickly. Speeches and lectures appear to have formed part of their amusement. In one place Sergeant Rice has the following "suggestions for an humorous sketch:—"

"Suppose the photographing of a baby which has been given to a couple whose motto for years has been 'hope.' Describe said baby a beautiful, innocent, dew-eyed darling—the preparation of the baby for the photographer's manipula-

tion. The baby is gorged by the mother as the Bedouin would a camel before starting on a desert journey, so that it would be quiet and content. Results in babe's indigestion. Then the attending troop of relatives. The photographer must await the arrival of some one who is said to charm the baby. Baby gets tired, but must be photographed smiling. He must vouchsafe a smile of benevolence, while in heart he desires to out-Herod Herod.

"The next subject is the beauty—or the faded beauty—who is, as are also her friends, dissatisfied with the photograph of her in the sere and yellow leaf. Or the young lady who resembles Mary Anderson or Adelaide Neilson. Or the ignorant lady, who will not tolerate a shadow under her chin. Or the general with the battle-scar, which his patriotic wife worships.

"Suggestions from cartes de visite. The social equality of the arrangement of photographs in a shop window—Henry Ward Beecher cheek by jowl with Pat Rooney.

"It is easy to recognize a photographer (unless he makes all his pictures by chance) by the manner in which the subject is posed and the arrangement of the light. A photographer has negatives in number equal to the population of a country town. Quote the criticism on Walter North's garden scene. The sense of beauty and best momentary pose of the body is a gift which cannot be picked up as a mechanical art can be, Instance among difficult subjects, the fat woman—'like heavenly pastures, large and fair.' The trials of the jail-photographer, the 'Bashful Sitter.' Custom House officers and dry plate. Speaking of troubles of photographing nature, writer might mention experience with a seal in the Arctic."

The following is one of Sergeant Rice's efforts in the poetical line:

"OH, WHAT'S THE TEMPERATURE?"

On the shores of an Arctic sea,
On the banks of Grinnell Land,
Where mortal man ne'er ought to be,
There dwells a little band.

This enterprising colony
Came without being sent,
Commanded by A. W. G.,
Who was on science bent.

With a shipload of thermometers,
And kegs of lime-juice many,
Anemometers, barometers,
But of shoes they hadn't any.

In their abode, 'mid ice and snow,
They at each other stare,
For while hourly wagging signal flags
They find they've nary a chair.

But they have other luxuries
That perhaps amount to much,
Immense amphibious "morpheidites,"
Velocipedes and such.

And out into the frosty air
Two dozen iron beds
Have formed a most appropriate lair
On which to place the sleds.

Their Arctic home is fortified
Against the Polar bear;
Barometers on every side
And thermometers everywhere.

Secure within this safe retreat
Reposed A. W. G.,
And asked of one he chanced to meet,
"What's the frigidity?"

At every hour of all the day
Observers then were sure
Of having "Horace" to them say,
"Oh, what's the temperature?"

And when, upon their hourly tramp,
They'd chance to ope his door,
He'd look up from his student lamp—
"And what's the temperature?"

At evening, when relieving came,
Did he rest his weary head?
Oh, no, my friend; it was the same—
"What temperature?" he said.

If Roxy went but in the room
To look upon the fire,
A ghostly voice from out the gloom—
"Is the temperature any higher?"

When Israel midnight vigil kept,
He'd hardly close the door
Before a voice from a man who slept—
"Is the temperature any lower?"

At morning when the breakfast meals
 Were on the table spread
 A muffled tread through the doorway steals—
 "How cold is it?" he said.

A question's heard through all the months
 From the General, lauk and lean—
 A hundred times if he's asked it once—
 "What is the monthly mean?"

The months roll by, a year is gone,
 A voice comes through the door
 From a tall, slim man, with a red cap on—
 "Will the mean be minus four?"

The weary sledgers, tired and sore,
 Come by which island way,
 But hardly have they passed the door—
 "How cold did you have it, pray?"

Should any of this poem tell,
 Should it fall in other hands,
 The poet sure will then catch h—ll
 From the gentleman who commands.

Latitude 81° 44' north, December, 1882.

G. W. R.

"THE TIDOMETER."

One more extract, to close this somewhat pathetic inspection of the dead explorer's diary. It is headed: "Doggerel notice stuck up to have myself awakened as usual to take tidal readings," and is as follows:

In the stall among thermometers,
 Barometers, hydrometers,
 Along with the geographer
 (Who is also the chronographer)
 There sleeps the old photographer,
 Who wants some one to jog him, for
 When 10:40 by chronometer
 He must go and read tidometer.

CHAPTER XXIV.

PREPARING FOR RETREAT.

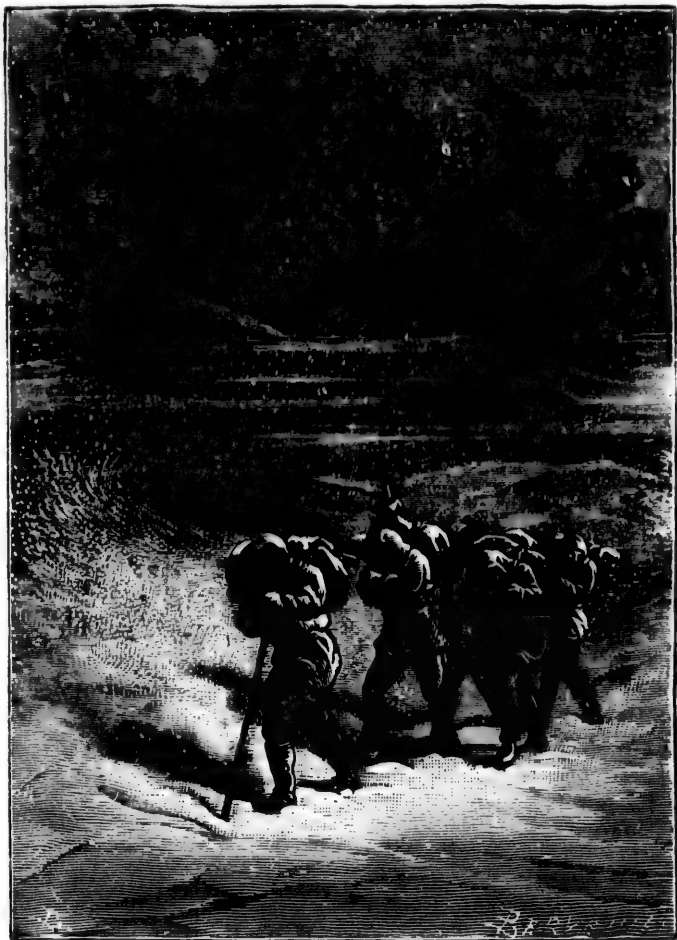
Crossing Grinnell Land—The Last Exploring Trips—The Retreat—Leaving many Provisions and the Dogs behind—Abandoning the Steam-Launch—A terrific Gale—On the Ice Floe—Gaining Land at Esquimaux Point—Rations found at Cape Isabella and Cape Sabine—Death staring in their Face—In Winter Quarters—The First Death—Scurvy the Cause.

ON February 1st, 1883, twenty-six days before the sun reappeared, a cache of provisions was made at Cape Baird, and these were increased from time to time during the month with a view to retreating southward in the fall should the relief vessel again fail to arrive, until the quantity reached about three hundred rations. Lieutenant Lockwood was early in the field. On March 10th, accompanied by Brainard and Jewell, with two dog trains driven by Jens and Frederick, he established a depot of supplies at Cape Summer. Returning to Fort Conger on the 18th, they rested until the 27th, and then, with the addition of Ellis, who, with Jewell, was to go only as far as Cape Britannia, once more took the field for the north coast of Greenland. At the end of six days they had reached the Black Horn Cliffs, where they were met by open water. They waited three days for the lead to close and made several journeys toward the interior with a view of taking an inland route, but finding none practicable and the ice appearing firm they once more attempted to round the cliffs, when a southerly gale with the spring tide drifted the floes away from the land ice. Lieutenant Lockwood succeeded at once in effecting his escape, but the others, with dogs, sledge and provisions, remained several hours on the floe, until it struck the ice foot as it drifted northward, when they made a bridge of their sledge, and with much difficulty and danger reached the land, not a little disappointed at the result of a journey which had promised so well. They returned to Fort Conger, arriving on April 13th, and seeing to the northward at Repulse Harbor, on their way, a lane of water extending

across to Lincoln Bay and from five to six miles in width. During this trip important tidal observations were made by Jewell at Black Horn Cliffs, Repulse Harbor and Cape Summer.

Lieutenant Lockwood's next journey was to the westward in continuation of Major Greely's exploration in that direction during the previous year. He was once more accompanied by Brainard and Esquimaux Frederick. They travelled to the head of Ella Bay, Arthur Fiord, and to the twin glaciers, which cut off farther advance in that direction. A large mountain seen here, some five thousand feet in height, was called Mount Difficulty. Retracing their steps, they next followed the shores of Beatrix Bay, abandoning their large sled and taking a smaller one brought for light travelling, and pushed on until they reached the west coast of Grinnell Land and looked out on the Polar Ocean. On the march they discovered an immense inland glacier which, from its resemblance to the great wall of China, was called the Chinese Wall Glacier, afterward changed to Agassiz Glacier. This forms the ice cap of Southern Grinnell Land, being separated from the northern ice cap by a belt of land about sixty miles in width. By a strange coincidence the farthest point west was reached on the same date as the highest northern latitude the previous year—namely, May 13th. Owing to the prevalence of a severe snow storm, they rested three days at the mouth of Greely Fiord, in order to obtain observations for position, which was ascertained to be latitude $80^{\circ} 48' 39''$ north, longitude $78^{\circ} 26'$ west. On the evening of the 16th, the weather being perfectly clear, the party ascended to the top of a cliff some twenty-two hundred feet in height, to view the adjacent coast. The cliff was of fossil formation. At one place the petrified roots of a tree were found intact. On the north side the land terminated in a high headland, fifty or sixty miles distant, which was called Cape Brainard. To the south, somewhat more distant, was Cape Lockwood. Beyond the latter another point was discerned with a telescope, separated from Cape Lockwood by open water. This was supposed to be new land, and was called Arthur Land. On the same day they started back toward Fort Conger, but the recent fall of snow, which was quite soft and more than knee-deep, made travelling very difficult, and their progress was slow. To add to their trouble their provisions were running

short, and they were compelled to subsist on half-rations. The last of the dog provisions had been exhausted, and at their second camp they killed one of their dogs to supply food for the rest. After a most trying journey they reached



GREELY'S MARCH SOUTHWARD.

their base of supplies, from which they had been absent fourteen days, and arrived at Fort Conger on May 26th.

During the season of 1882 Major Greely made two journeys into the interior of Grinnell Land, leaving Fort Conger

on April 23d and June 24th respectively. The first of these journeys occupied twelve and the second nineteen days, and many important discoveries were made. Conybear Bay was found to be a large fiord. Weyprecht Fiord and a number of lakes were seen, the largest of which, about seventy miles long by fifty wide, was called Lake Hazen. This was fed by rivers and streams from the ice cap of Northern Grinnell Land, and discharged through Ruggles River into Weyprecht Fiord, and, notwithstanding the early season in April, the river was open on the shores of Lake Hazen. Winter-quarters of Esquimaux were found and some relics showing that they had possessed dogs, sledges and iron. Two ranges of mountains running nearly parallel with the United States range were called respectively Conger and Garfield range, and a lofty peak, the highest in Grinnell Land, Mount Arthur. Of glaciers there were many, the largest of which was called Henrietta Nesmith Glacier. Great hardships were endured on the second of these journeys, when the Major and Linn, leaving the supporting party, travelled with packs, which weighed on starting about eighty pounds, fording and swimming many streams and being otherwise subjected to much exposure, without, however, any eventual ill resulting therefrom.

In June Lieutenant Lockwood and Brainard made another journey to the interior of Grinnell Land, taking a north-westerly direction to within a short distance of the United States range and adding a number of glaciers and several rivers to those already known. They were absent six days (June 13th to 19th) and took provisions for that time in packs on their backs. This practically closed the operations for the year. The season of 1883 was a very backward one, at least two weeks behind that of 1882, which was in turn a close season as compared with 1881, when the ice was remarkably open.

It was early feared that a relief vessel might not reach the station, and preparations were made to abandon the post as soon as the state of the ice would permit. In anticipation of this, on April 5th, Rice, with ten men and a dog sledge, went to Thank God Harbor for the English ice-boat known to have been left there by Beaumont and returned with it in good condition on the 15th. It was a double boat, made specially for ice work and very light, weighing only about

seven hundred and fifty pounds, complete with its outfit. There was no break of importance in the ice until August 4th, when a southwest gale set in and continued several days, breaking up the ice in the bay so that a start was determined on.

The boats taken were the steam-launch *Lady Greely*, the whaleboat *Narwhal*, both built in the United States, the jolly boat *Valorous*, left at Cape Hawkes by the English and brought up in the *Proteus* in 1881, and the ice-boat *Beaumont*. Two tons of coal and about eight months' supplies were left in a secure place, to be ready should a return be made necessary. A number of barrels of blubber, spoiled meat and bread were broken up to serve as food for the twenty-three dogs which were left in possession. The coal was part of some fifteen tons which had been mined and hauled from the vein in Water Course Bay. The records of the expedition, copies of all photographs with four dozen selected negatives and the lighter instruments, including the pendulum, were taken. At two o'clock on the afternoon of August 9th, 1883, the party of twenty-five bade farewell to the place which had been to them for two years not only a home but a home fraught with so many pleasant recollections that they still speak of it as the paradise of the Arctic. The steam-launch, which Major Greely says was most efficient, towed the other three boats, the people and stores being divided among them. Three tons of coal and a quantity of provisions were stowed at Cape Baird, and that was therefore the first objective point. Passing to the southward of Bellot Island, the ordinary channel for vessels being still closed, they soon cleared the pack and entered a lead to Archer's Fiord, where they came near losing the launch in a nip. Arriving at Cape Baird on the morning of the 10th, they took on the provisions and left at midday with fifty days' supplies. Passing around Cape Leiber they encountered a moving pack from the northward, and were compelled to run into Cape Crocroff and tie up to the land ice. Here they took up forty-eight pounds of corned beef, left by Major Greely the previous year, and, the tide having drifted the ice off shore, they ran on to Cape Bock and Carl Ritter Bay, finding comparatively open water.

The provisions left here by the *Proteus* in 1881, 200 rations, and those cached at Cape Cullinson by Nares in

1875, 240 rations, were taken on board. The small stores in the Nares cache, such as tea, tobacco and sugar, were bad, as well as a barrel of bread. About midway between Capes Leopold, Bon Bouche, and Lawrence they were frozen in for five days, when they forced their way out, and after various detentions from the boats getting ashore, and several severe nips, which the launch stood well, the other boats being hauled up, they finally reached Cape Hawkes on August 26th. They landed and left a record on the summit of Washington Irving Island, and took on the small quantity of potatoes, pickles and bread found in the English cache, except about three or four hundred pounds of the latter, which was too mouldy for use. At 4 P. M. the same day they started for Cape Sabine, having clear water until 10 P. M., when the wind off shore drove the pack out and compelled them to make fast during the night. Young ice several inches thick formed off the mouth of Allman Bay, the water being fresh there on account of the flow from John Evans glacier, so that they were unable to extricate the launch, but drifted slowly to the southward with the pack. The tide occasionally would open a lane and they worked through it a short distance, only to be brought up again. For the season of the year the temperature was unprecedentedly low, being generally below zero, and the party suffered much with cold. In order that they might not be missed by the expected relief vessel a tripod was erected on the ice and a flag hoisted at an elevation of thirty feet to attract attention. A northeast gale broke the floe, so that the position of the party was frequently changed, and they were finally driven to within about six miles of Cape Albert.

As soon as the state of the ice permitted the stores from the different caches were collected at Camp Clay. These may be summed up as follows, viz. : Beebe cache and English cache, 240 rations each. In the latter considerable tea, sugar, chocolate, bread and dog biscuit unfit for use. The rum and alcohol were missing. Garlington cache, 500 pounds of bread, ninety of pemmican, and a few cans each of roast mutton, peas, string beans, green corn, and two boxes of lemons. These last were in excellent condition and proved a rare treat in more respects than one. Major Greely speaks of them in the highest terms, and says that he would never again go to the Arctic without lemons, and the scraps of paper in which

they were wrapped furnished the news of the day. The bombardment of Alexandria, the eruption of *Ætna*, and the election of reform governors in many of the States were all heard of through this means, and we were frequently surprised after the Major came on board the *Thetis*, when telling him what we supposed would be an interesting item of news, to hear him say, "Yes, I heard of that; we read it in the scraps that were around the lemons."

Here Major Greely determined to abandon the steam-launch and *Valorous*, which was accordingly done, two small sleds being made from the inside works of the launch. With these and the twelve-man English sled, which had been recovered from Thank God Harbor, where it was left by Beaumont, and had been brought along to meet such an emergency, the party set out across the ice for the nearest point of land above Cape Sabine, some eleven miles distant. It was a weary journey; the ice was rough and hummocky, and two journeys were required with the small sleds for the provisions, and two with the larger one to transport the boats. Even then they accomplished only about one mile daily. Officers and men worked alike at the drags. On September 13th, finding that the large sled was weakening, the whale-boat was abandoned and only the *Beaumont* remained. Twice driven back into Kane Sea by southwesterly gales, and fearing as much that they would be driven to the southward past Cape Sabine as that they would not reach that point, the floe on which they were travelling was driven, on September 22d, by a northwest gale, down by Brevoort Island to the mouth of Baird Inlet, where it was stopped by grounded bergs and so broken up that they were left on a small piece only about fifty yards in diameter. The floe continued to come down from the northward, and, grinding and crumbling together, piled up in some places to a height of twenty-five feet. Their encampment of snow houses and tents was broken up, and they were forced to attempt a landing, which they finally effected on the north side of Baird Inlet on September 29th.

Two men, Rice and Esquimau Jens, were at once sent to Cape Sabine to examine into the state of affairs there, while the remainder, except Long and Esquimau Frederick, who were detailed as hunters, set about constructing winter quarters. Game, however, was very scarce, and only three seals and a few ptarmigan were obtained. Rice and Jens returned

on the 9th of October with the discouraging news of the Proteus disaster, and the scanty supply of provisions at Sabine, Major Greely upon hearing their report announced that the party must abandon Esquimau Point, as he had named it, and transfer the camp to a place nearer the base of supplies.

A start was made on the next day, when one load of provisions was advanced as far as Rosse Bay, and on the 11th the remainder. They then travelled along a strait discovered by Rice, and named after him, which connects Rosse Bay with Buchanan Straits, placing Cape Sabine on an island instead of the mainland, as was formerly supposed. Rice and Jens having gone to Cape Isabella to ascertain whether any supplies had been left there last year, found only the 144 pounds of meat left there by the English in 1875.

The people had been on reduced rations since September 25th, when the allowance of meat was made twelve ounces, and at Esquimau Point one-half that quantity. On the evening of October 15th they reached the Proteus wreck cache, with all their provisions, except one load, which had been cached at Cocked Hat Island, and set to work on winter quarters. A hut was built of stones, roofed over with the whaleboat from the Beebe cache, the oars serving as rafters and covered with canvas, the sides being banked up with snow. Of course, there were no means of heating it, as barely fuel enough was obtained to warm the food. It was never cooked. On the ground canvas was spread, and over this buffalo overcoats, on the top of which the sleeping-bags were placed.

On the 2d of November a party was sent to Cape Isabella to secure the meat which had been found there. It was composed of Rice, Linn, Elison, and Fredericks, with the small sled and several days' provisions. On the 9th, about midnight, Rice returned and reported the party at the head of Rosse Bay, suffering severely with cold and Elison dying with frost-bites. Relief was at once sent, and about noon of the 12th Brainard reached them in a severe gale with food and medicine, and found Elison badly frozen and delirious. Fredericks and Linn were in the sleeping-bag with him trying to keep him warm, and the three were literally frozen in the bag, and had to be cut out. They would undoubtedly have perished but for Brainard's timely arrival, as the temperature was minus 30° Fahrenheit, and they were without a tent.

With the assistance of a party under Lieutenant Lockwood, which had also come to the rescue, they were gotten to Camp Clay, Elison having both hands and feet frozen stiff, so that he never used them again. They had been compelled to abandon the meat at Baird Inlet, with everything not absolutely necessary to save life.

During the latter part of October Long, with the two natives, was stationed at the junction of Rice and Buchanan Straits for the purpose of hunting, and suffered greatly with cold and hunger. They had only a tent to live in and were on reduced rations. They returned about November 8th, badly frost-bitten, having killed only three seals. From November 1st the command was placed on further reduced rations, which had been accurately estimated to last until March 1st, with a reserve of ten days' full rations for the trip to Littleton Island when the sound should freeze over. This reduced ration was composed as follows: Meat and blubber, four and one-third ounces; bread and dog biscuit, six and one-half; canned vegetables and rice, one and two-fifths; butter and lard, three-quarters; soups and beef extract, nine-tenths; cloud-berries, pickles, raisins, and milk, one ounce; making a total of 14 88-100 ounces per day. About this time the whale-boat Narwhal, which had been left on the floe, drifted down near Cape Sabine and was wedged in the ice between Brevoort Island and the mainland. She was secured and used during the winter for fuel. After the middle of November hunting became impossible on account of the darkness and cold, besides being useless, as there was no game to be had, so they waited patiently for the closing of the sound by ice, but waited in vain.

Throughout the entire winter open water separated them from Littleton Island, where there was an additional cache of provisions which, though not large, would have been sufficient, with economy, to pull the entire party through, and near at hand were natives on whom they might have relied for assistance, as did Kane and Hayes. Every effort was made to preserve cheerfulness in the little band, so necessary to its very existence. Conversations were kept up on all sorts of subjects, however frivolous, and they talked when they felt least like it, because they deemed it their duty. The few books that they had were read and re-read by the dim light of a blubber-lamp with moss wicking, and a statistical

almanac was a perfect mine of wealth. The survivors speak in the warmest terms of the major's powers of conversation, and the gallant efforts which he made to keep up the spirits of his little band. Notwithstanding their destitute condition Thanksgiving and Christmas days were observed as usual. For more than a month they saved from their scanty rations in order that they might have, at least by contrast, a good dinner on those days. It consisted principally of rice pudding, with a glass of rum punch to wash it down.

As early as March 13th Long was sent with Frederick and



WATCHING FOR SEALS.

Jens to Alexandra Harbor to look for game, the English expedition of 1875 having reported abundant traces in that quarter. They returned exhausted, however, after an absence of three or four days and empty-handed. Long, however, had made the important discovery of new land in Hazen Sound, having seen from the western side of Mount Carri three capes beyond the farthest reported by the Nares expedition. The life at Camp Clay during the winter and spring is simply indescribable. Rice discovered salt shrimps, with which they eked out their suppers, but they contained very little nutriment, and the labor of catching them may be im-

aged when it is known that it required 1,300 to fill a gallon measure. Lichens gathered from the rocks, saxifrage, and boiled seal-skin were also eaten. Twenty-four foxes, weighing about four pounds each, were killed with shotguns as they prowled around the camp, and with the return of daylight fourteen ptarmigan, sixty dovebies, a small seal, and, in April, a bear, which netted them 257 pounds of good meat. Nothing was wasted, and this last undoubtedly saved the lives of the few who survived. Sergeant Brainard had charge of the issue of provisions, which were carefully weighed in an improvised scale, cartridges serving as weights, and equitably distributed. In March it was found necessary to again reduce the ration, there being nothing left then but bread, meat and tea, and on May 14th the last issue was made. This consisted of six ounces of meat, everything else being exhausted. Some ate it at once, others hoarded it as long as possible before relying wholly on the seal-skin, shrimps, and lichens.

The first death was that of Sergeant Cross, who had been the machinist of the steam-launch, and then there was a long lapse of time until Esquimau Frederick gave in. This last, together with the death of the other Esquimau, Jens Edward, by drowning, proved a serious loss, as they were both good hunters, and without the kyak much of the game that was killed could not be secured. Long, however, was the main reliance of the party as a hunter. He is an old frontiersman and a dead shot. Had it not been for the scarcity of game he would have had no difficulty in providing for the entire party. Rice, who with Fredericks had volunteered to go to Baird Inlet to recover the meat left there the preceding autumn, died on the trip of exhaustion and was buried by Fredericks on the floe. The meat was not found. After this, which occurred April 9th, they fell off rapidly, and but for the timely arrival of the ships not a man of them would have survived. Lieutenant Lockwood, and Mr. Rice, the photographer, succumbed after a heroic attempt to secure for their starving comrades about 200 pounds of meat supposed to be cached at a place named Bad Creek, distant about fifteen miles from the encampment. Mr. Israel, the astronomer, perished on May 27th, Lieutenant Kislingbury died on June 1st, and Dr. Pavy, the naturalist, slept into death on June 6th. Not one of the victims realized that death was near. They all died a tranquil, painless death. Thanks to the energy and

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despatch with which the expedition had been fitted out we were on the ground at the earliest possible date, and had the exact position of the party been known when we sailed from New York, not another life could have been saved. May 4th, the winter hut, which was only six feet above high water mark, was abandoned, and the party moved up the hill on account of the dampness from melting snow, and lived in a wall-tent, and here they were found on the day of the rescue, which they little thought was so near at hand.

While lying in their tent, too exhausted to go out in the southwest gale which was raging, something very like the sound of a steam-whistle was heard, and Long and Brainard were sent to the rocks, where a signal of distress was flying, to see if there was anything in sight. Intervening hills hid the ships from their view, and they returned disappointed with their melancholy report. Brainard says that this was the bitterest moment of his life, and that he then gave up all as lost. Long, not yet fully satisfied, went out again, and climbing to the hill-top, saw the Bear's steam-launch approaching, with the ships in the distance. Too overjoyed to control himself, almost too weak to stand, he tumbled rather than ran down the hill to meet his rescuers, and was the first of the party to arrive on board the ship.

CHAPTER XXV.

THE RESCUE.

The Voyage of the Relief Ships Thetis, Bear, and Alert to Lady Franklin Bay—Battling with the Ice—Looking out for the Greely Party—Finding the Survivors—A Terrible Sight—Relieving the Sufferers—Ten Graves—Homeward Bound—Meeting the Alert—Death of Elison—Interment of Frederick Christiansen.

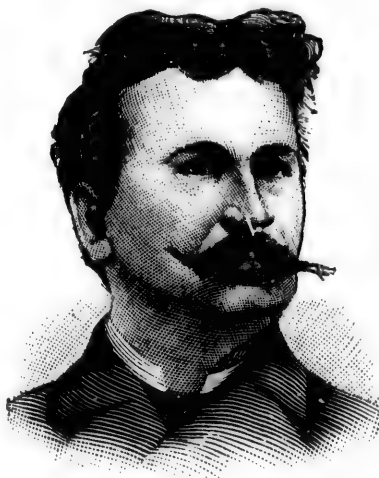
THE United States government not having received any news concerning the Greely colony, in the spring of 1884 sent out another relief expedition, consisting of the steamers Thetis, Bear, and Alert.

The Bear, the first of the Greely Relief Expedition to leave New York, sailed shortly before four o'clock on the afternoon of April 23d. The officers and crew of the Bear were as follows: Lieutenant W. H. Emory, commander; Lieutenant F. H. Crosby, executive; Lieutenant John R. Colwell, navigator; Lieutenant N. R. Usher, ensign; L. K. Reynolds, passed assistant surgeon; H. E. Ames and Chief-Engineer John Lowe. Seamen, Jacob Johnson, Albert Jason, John Johnson, James F. Burke, James C. Coogan, James J. Campbell, Joel C. Evans, Hugh Brock, Ferdinand Boljohn, Carl J. Carlson, Arthur Lloyd, Francis Duryea, John Johnson, Jr., and Heinrich Krasburg; boatswain's mate, John Quevedo; carpenter, Joseph B. Freeman; ordinary seamen, Louis C. Smith, Charles H. McLeod, David H. Kiernan, and John Roberts; landsmen, Otto Shurz, Gustave Weber, and George Sovo; machinists, J. M. Beam and Henry Thomas; blacksmith, Thomas J. Warton; firemen, James Regan and Archie Currie; ice-pilot, Captain Ash.

The Bear was purchased by the United States government on January 31st, 1883, from W. Grieve, Son & Co., of St. John's, Newfoundland, for \$100,000. She was used as an Arctic sealer, and was considered one of the strongest vessels afloat. She was a three-masted vessel, barkentine rig, and was divided into two compartments. Her dimensions were: Length, 190½ feet; breadth of beam, 29½ feet; depth

of held 18½ feet; gross tonnage, 689 tons; net tonnage, 468 tons. She was built at Dundee, Scotland, in 1874, and had compound engines with cylinders of 25 and 50 inches diameter respectively, and 30 inches stroke. She was built of hard wood and sheathed from the keel to above the waterline with greenheart, a wood obtained in Demarara, South America. It is considered the hardest wood in the world. The forward part of the vessel for about fifteen feet was built up of solid timbers. The Bear was thoroughly overhauled and refitted at the Brooklyn Navy Yard. The cost of the repairs amounted to nearly \$20,000.

The Thetis, the flag-ship of the Greeley Relief Expedition,



LIEUTENANT W. H. EMORY.

sailed from New York on May 1st. Her officers and crew were: Commander W. S. Schley, the commander of the expedition; Lieutenant Urell Sebree, Lieutenant Emory H. Taunt, Lieutenant Samuel C. Lemley, Ensign Charles H. Harlow, Chief-Engineer George W. Melville, Passed Assistant Surgeon E. H. Green; ice-pilot, J. W. Norveau; cook, Max Tyron; steward, Charlie Yong Sing; quartermaster, George Cross; first-class fireman, Thomas Clark; second-class firemen, Harvey D. Wall and Frederick W. Griffin; seamen, William

Attkin, George Harvey, William Johnsen, C. Oxchmitt, W. Booth, Edward W. Walker, Joseph B. White, C. Wilson, C. Puelsen, F. Bujjessen, J. W. Powers, Bartley Cook, Michael Hickey, Joseph Mitre, Thomas Maloney, George G. Yewell, J. Munsen, F. F. Taylor, and J. McDonald.

The United States government bought the Dundee whaler Thetis on the 5th of February. She was two years old, was of 600 tons burden, and was the strongest and staunchest of the Dundee whaling fleet. On the 8th of February Lieutenant-Commander F. E. Chadwick, naval attache of the American Legation at London, and Mr. Leigh Smith, the well-known Arctic explorer, inspected the Thetis at Dundee. Secretary

Chandler, on the following day, detailed Lieutenant-Commander Caspar F. Goodrich, the executive officer of the *Lancaster*, to proceed to London and to bring to this country the *Thetis*. This order was, however, countermanded, and Rear-Admiral Baldwin, who commands the European station, detailed Lieutenant Lazarus L. Reamy, also of the *Lancaster*, to take charge of the vessel. On the 14th of February the London Board of Trade, upon inspection, approved the *Thetis*, and the purchase of the vessel by the United States was finally completed. The amount paid for the vessel was about \$140,000. The original price asked by her owners was nearly \$160,000. She was formally turned over to the United States on the 26th of February, and she sailed from Dundee on the morning of the 29th. On reaching New York the *Thetis* was taken to the Navy Yard, where she was refitted for the expedition.

The *Alert*, the last of the relief vessels to leave port, sailed on May 10th. Her officers and crew were as follows: Lieutenant-Commander George W. Coffin, commanding; Lieutenant C. I. Badger, Lieutenant H. J. Hunt, Ensign C. S. McClane, Ensign A. A. Ackerman, Chief-Engineer W. H. Nauman, Passed Assistant Surgeon, F. S. Nash; able seamen, Frank Blokus, P. C. Hansen, Charles Baxter, William Bloom, M. C. Bot, Thomas Nilson, Thomas Watts, Thomas Beesweihemck, Charles Guyken, Armand Olsen, J. Luckscheintz, Charles Tristram, Alexander Watson, Herman Lara, H. Lupkerwitz; firemen, J. Wachter, John Sullivan, T. S. Roberts, William Hess; boatswain's mates, Joseph Doyle and Thomas Bragger; blacksmith, A. H. Kemble; quartermasters, Philip Shantz, Salvator Torgada; machinists, William J. Bowers and J. T. Green; captains of maintop, Albert Jones and Charles Anderson; carpenter's mate, Edward White; steward, Waldemar Wettergreen; cabin cook, Olaf Anderson; ship's cook, Adam Weizel.

The *Alert*, which was presented to the United States by England to be used in the expedition, was built of wood at the Pembroke dock-yard in 1856, and was originally a five-gun sloop of war. In 1874 she was thoroughly overhauled at the Portsmouth dockyard, and was fitted up specially for an Arctic exploring vessel. She took part in the English Arctic expedition in 1875, and proved herself admirably fitted for such work. She was formally turned over to Minister

Lowell on March 25th. The Alert is now regarded as one of the strongest vessels afloat. She registers 1,045 tons, and is 179 feet long over all, and 160 feet at the water-line. Her breadth of beam is $32\frac{1}{2}$ feet, and when fully equipped she draws 15 feet.

The Thetis arrived at Disko on May 22d, accompanied by the collier Loch Garry, after a pleasant passage of ten days and two hours from St. John's. On the first day out several large bergs were passed, but once clear of the coast no more ice was seen until we neared the shores of Greenland. On the morning of May 18th the ship was completely surrounded for several hours by loose, scattered field-ice, on some pieces of which seals were seen. The west coast of Greenland was sighted on May 20th, in latitude $64^{\circ} 30'$ north, longitude $53^{\circ} 20'$ west, and the part of Davis Straits through which we were then passing was found to be remarkably free from ice, only an occasional berg being seen. Off Disko she met large pans of floating ice, varying in thickness from three to five feet and extending about three miles to seaward. Not without some difficulty she worked her way through these and made fast with ice anchors to the fixed ice in the mouth of the harbor of Lively. Here she learned that the past winter had been one of the most severe ever experienced. The Bear had arrived on May 15th, ten days and fifteen hours from St. John's. On the passage down she had taken a more westerly course than that pursued by the Thetis and encountered continuous fields of ice and large bergs on the coast of Labrador and met winter ice off the Whale Fish Islands, which lie about twelve miles south-southwest from the entrance to Lively Bay. Taking a westerly course she forced her way through to the mouth of the harbor, where she made fast to the ice. Two whalers, the Triune and Cornwallis, had arrived, and shortly afterward the former attempted the passage to Upernavik, but failed on account of the ice. She returned and both then sailed, as their captains said, for the Southwest fisheries. On the 17th the Bear left for Upernavik and succeeded in getting as far as Hare Island, some seventy miles north of Disko, where she was stopped by an impassable barrier of winter ice, and on the 18th put back to Disko. In the meantime the Dundee whalers Polynia and Nova Zembla had arrived, and on the 21st, the day before the arrival of the Thetis, they left for the north, followed closely on the same day by the Bear. She

took with her as dog driver Hans Havsen, who accompanied Nordenskjöld to Cape York the previous year. David Danielson who was on board the *Proteus* with Lieutenant Garlington, and made the passage across Melville Bay in Lieutenant Colwell's boat, went in the same capacity on board the *Thetis*. During the stay at Disko preparations were made for encountering the ice. Men were drilled at "abandon ship." Sixty days' provisions, including pemmican, tea, sugar, bread and extract of beef, were placed on deck to be ready for an emergency.

Arms, ammunition and accoutrements were distributed. Each man was given a knapsack containing a change of clothing, foot-gear and tobacco, to be kept at the head of his bunk and not to be disturbed except in the event of abandoning ship. Torpedoes, both of gun-cotton and gunpowder, were experimented with and found to operate well, although the ice here was too soft to give them a fair test. Throughout the cruise there were no drills, except these, and at fire quarters, the idea being to have no unnecessary work.

The *Thetis* sailed from Disko on May 24th, convoying the *Loch Garry*. At five P. M., having advanced about forty-five miles to the southward, heavy pack-ice was met, and, preferring not to risk the *Loch Garry* in it, Commander Schley waited until the next morning for a lead, and then, the ice being still close packed, the *Loch Garry* was signalled to return to Disko and there await an easterly wind, while the *Thetis* stood on, taking a lead where it could be found, ramming and boring as occasion required. On the 27th she arrived off Hare Island and the next morning, having been again joined by the *Loch Garry*, together with the whalers *Arctic* and *Wolf*, the four vessels proceeded together to Upernavik, sometimes one and sometimes another leading the way, except the *Loch Garry*, which, being an iron vessel and not adapted for ice work, always brought up the rear.



COMMANDER W. S. SCHLEY.

On May 29th, at half-past seven A. M., the *Thetis* and *Loch Garry* arrived at Upernavik, followed later by the *Wolf* and *Arctic*. Here the ships found the *Bear*, together with the Scotch whalers *Triune*, *Polynia* and *Nova Zembla*. The *Bear* had arrived the previous evening, having first run up to Berry Island, twenty-five miles north, to examine the state of the ice. Lieutenant Emory reported that it was impassable, that the whalers *Cornwallis*, *Aurora* and *Narwhal*, all of Dundee, were there waiting for the ice to open. In the afternoon all the whalers, with the *Thetis* and *Bear*, left Upernavik, the *Loch Garry* remaining behind to await the convoy of the *Alert* and a more favorable season for crossing Melville Bay. Governor Elborg, of Upernavik, accompanied the ships as far as Knigatock, a small settlement twelve miles north, where they tied up to the ice, the *Arctic* close by the *Triune*, *Polynia*, *Wolf* and *Nova Zembla*; on the other side of the island the *Cornwallis*, *Aurora* and *Narwhal* in sight from the hill top. The whalers were much surprised to see the squadron so early in the field. The vessels of no other expedition, either of relief or exploration, had ever arrived there at so early a date, or even left England or the United States before June 1st, the day on which this expedition left Knigatock and made a start across Melville Bay.

From this time until the day of our arrival in the open water around Cape York the ships were continually battling with the ice or waiting for a chance to push on where it was found impenetrable. The entire fleet of eight whalers and the two expeditionary vessels were together at the Duck Islands from June 6th to 11th. The *Thetis* and *Bear* had touched at Tessnisak, the northernmost of the Danish settlements, on the way up. While waiting for the ice to open the men had fine shooting. Eider duck, doves and loons were abundant. From this point the vessels separated, the *Thetis* and *Bear*, with the whalers *Arctic* and *Wolf*, being generally in company, the remainder running in groups of three or four together, with the *Esquimaux* and *Jan Mayen*, which afterward came up. Each day, though eventful in itself, was but a repetition of the preceding. The ice varied in thickness from three to five feet, even more when rafted, and it was only by watching the leads carefully and taking advantage of every favorable opening, that the ships made any progress at all. Commander Schley almost lived in the crows' nest.

Sometimes when waiting they would tie up to the lee of a berg, but more frequently to the floe, and, if the obstruction was not absolutely impassable, resorted to ramming and torpedoes to force a passage. On the 14th and 15th they made comparatively fine runs to the westward, passing through much open water and loose pack-ice. On the 16th and 17th they were at a standstill all day within fifty miles and in sight of Cape York, the ice being there impenetrable and, with a fresh southerly wind, threatening a nip. Captain Fairweather, of the *Aurora*, who has had much experience in these waters, stated that he had never before seen the land ice here extend so far off shore—about thirty-five miles. At



CAPE YORK—MELVILLE BAY.

nine P. M. on the 17th the *Thetis* and *Bear*, with the whalers *Aurora* and *Wolf*, got under way, the ice having opened, and worked through leads and heavy pack toward Cape York. At two A. M. on June 18th the ships passed into open water off Cape York, the *Aurora* leading, the *Wolf* next, and then the *Thetis* and *Bear*. The crew of each vessel as she cleared the ice gave three cheers. The *Arctic* was still hull down astern, but in another hour she, too, ran into the north water. It was a lovely morning, the temperature just below the freezing point, the sun shining brightly, scarcely a ripple on the surface of the water, while thousands of little auks flying about the ship made the air resound with their cheerful twitter.

Being now in a region where we might hope to find traces of the Greely party, our colors were hoisted to attract attention. The Bear was signalled to push ahead and send a party on shore to communicate with the natives, and she was the first ship to reach the land ice off Cape York. Preparations had been made to send in a joint sledging party from the two ships with ten days' supplies should it not be possible to reach near the cape, but this was not necessary, and Lieutenant Colwell, of the Bear, with three men, a sledge and small boat went in, the Thetis coming up. In the meantime the Bear was despatched to the northward, and Lieutenant Colwell with his party having met a native on the way out returned and took passage on board the Thetis until the two ships met at Littleton Island. Nothing had been heard here of the Greely party. From this point a search was made at all places where records or people were at all likely to be found. The Bear went to the Carey Islands, the Thetis to Conical Rock, Westernholme and Saunders Island, Cape Parry and finally to Littleton Island, where she arrived on June 21st. At the last place the Beebe cache was found in good condition, but no tidings of the Greely party. Until now no one on board supposed that they would have to go beyond this place, but failing here the impression became general that they were bound to Lady Franklin Bay, with a probability of a winter in the Arctic, no one supposing for a moment that the party had come south and been unable to cross the sound. Letters were got ready to send home by the Alert when she should go in the fall, and sledging parties were discussed to start north when the ships could go no farther. On Sunday, the 22d day of June, 760 rations were landed and cached, and it was decided to land 3,000 more at Payer Harbor. The Bear arrived at noon, and at four P. M. both ships ran across through open water to Cape Sabine, arriving at Payer Harbor at ten minutes to seven, where they made fast to the ice. Parties were at once sent to scour the adjacent hills for records.

Lieutenant Colwell thus describes the finding of the survivors:

"On this, the 22d day of June, 1884, we found all that remained of the Lady Franklin Bay expedition in command of Lieutenant A. W. Greely. The object of our trip into these waters was accomplished. The problem for which so many

theories have been advanced has been solved. The anxiety about the Bear continued all through the morning; the gale was increasing and the weather growing thicker, and still no signs of her. A little after twelve two men who were pulling in a dory from the shore sang out, 'There's the Bear.' Mount Garry Island shut off the view from the deck, so I mounted to the crow nest and anxiously watched the top of the island. Two or three minutes passed, and then the little black nest at her foremast head slowly crept over the edge; then her mainmast and mizzenmast heads, with the ensign and pennant flying, assured me beyond doubt that it was the Bear. She soon made fast. Captain Emory reported, and by 2.30 we were off for Cape Sabine. All sail and steam carried us across in about four hours. The cairn could be seen on the top of Brevoort Island, and the location of the one on Starknecht Island was descried. Lieutenant Taunt and Ensign Harlow were sent at once to examine these, as soon as the ships made fast to the ice in Payer Harbor.

"In each of them records of Greely were found, dated in October, 1883, and reporting all well at that time. The location of their camp was given as being at a point midway between Cape Sabine and Cocked Hat Island. Captain Schley went on board the Bear at once and started for the camp. The Thetis remained to pick up her officers and men, and soon joined the Bear at Camp Clay, as the winter-quarters of the Greely party were called. All remarked on the possibilities of the next hour while on our way around, but no one dreamed of the horrible tragedy that was to be revealed. The wind had increased to well-nigh a hurricane. It tore over the hills in furious blasts, driving the water in sheets before it, and heeling the ship to an uncomfortable degree. The Bear had steamed nearly up to the ice, and people could be seen running about on shore. Some one was seen on the ice signalling with flags. 'Send doctor with stretchers and Harlow with photograph machine; seven alive.' When it came to the last two words I made him repeat them. With what careful interest I watched them no one can realize. It might be D-E-A-D; but no, A-L-I-V-E waved plainly through the air, and the fate of the Greely party was known on board the Thetis. Boats were lowered at once, manned with strong crews, and a party of officers and men started for the shore. It seemed a long pull. It was a hard pull, but

with water dashing over the rail at every lunge and rolling gunwales under in the short but heavy seas, we finally reached the ice foot and hurried to the scene of misery. A few steps from the landing we met a black face, with horrid, staring eyes, wrapped in a clean blanket that contrasted strangely with the filthy clothes that covered the body of one of the survivors. It was Fredericks, who was strong enough to walk to the boats—a miserable sight, but cheerful compared with the one that met our gaze a few steps farther on. A slight incline to the left and the busy relief parties came in view. Passing a small fire on which pots of milk were warming we came to the tent, under which lay four of the poor fellows. Two lay outside, one with his face swollen so that he could barely show by his eyes the wild excitement that filled his being. The other was muttering in a voice that could scarcely be heard in the howling of the gale his hungry appeal for food. Pushing aside the flaps of the tent we saw a sight the like of which we trust never to see again. Crowded together in the little of the tent that was left standing lay Greely and three of his men in their sleeping-bags, their faces black with dirt. Their hollow cheeks and their gleaming eyes made a picture that we will never forget, and told a story that has but few rivals in the histories of miserable sufferings. The short glance revealed four men with the hand of death laid upon them; one, indeed, was gasping his last feeble breath while food and stimulants were forced between his teeth. The fate of the other three was a question of a very few hours. The gale was killing them in their weak and exhausted condition. To move against such a wind was an impossibility. An able-bodied, healthy man bent to it at times. So there they lay, waiting for death, unable to cook the pitiful ration of tanned oil sealskin and lichens that they called their meal."

The scene at the camp beggars description. It is sufficient to say that they were starving, and but for the timely relief afforded some of them would have died during the night. Connell had been given up as lost. The gale was killing them, and Major Greely says that he gave himself only about sixty more hours to live. Fredericks, Long and Brainard were the strongest of the party, and they were only able with great difficulty to walk down to the boat. It is a remarkable coincidence that Mr. J. W. Norman, the ice pilot of the *Thetis*,

who was mate of the *Proteus* in 1881, and the last person to say good-bye to Greely at Lady Franklin Bay, was also the first to greet him here, having accompanied Lieutenant Colwell in the *Bear's* steam-launch, and being the first to arrive at the camp he jumped ashore at once. Upon landing, with his pockets full of bread, he heard from Long the melancholy news that there were but seven left, and knowing that Greely was one of them, he ran up the hill to within hailing distance and called out, "You are all right, Greely; there are two ships here for you."

The major, recognizing the voice, replied: "Is that you, Norman? Cut the tent." The tent had blown down on them and they were too weak to set it up again. They had not eaten anything warm for more than two days, being unable to crawl out and build a fire. Our glance was a short one: work was to be done, and all turned to do it with heart and hands. The poor sufferers were wrapped in blankets, fed with warm milk, beef-tea and crackers, and carried to the boats. A photograph was taken of the camp despite the time, 11 P. M., and the weather. The living having been provided for, our next sad duty lay with the dead. The graves were on the summit of a ridge behind the camp—ten of them, with their scanty coverings of gravel. Each body was carefully unearthed and wrapped in blankets, marked to correspond with its number on the diagram that was made and carried to the boats. This task being finished and the bodies divided between the boats, the next difficulty was to reach the ship. It seems almost a miracle that they got safely alongside and could discharge their sad cargoes, with the survivors in charge of the sympathizing officers and crew, who removed their rags, bathed and fed them. Their dead comrades were piled on the dory and covered with a tarpaulin. We steamed back to Payer Harbor, and about 4 A. M. made fast to the ice again in about the same place we first had the information that led to the stirring events of the night.

The next day the *Bear* revisited the camp and collected every scrap and relic appertaining to it. The cairns were revisited, and the records left by Greely, his pendulum, journals, the flag of the Nares expedition that he proudly brings back from the place where they left it as marking their highest latitude, his instruments, and their records. Our work being completed, we turned homeward from the places

made sad by so many former, and triply so by the recent, disasters. They have closed the gates of Smith's Sound for a time, but expeditions to come—and they are sure to come—will learn more from the conduct of the party in command of Lieutenant Greely than they could ever know from the combined experiences of the earliest to the latest explorers in those regions.

The ships then ran across to Littleton Island. The sound was still open, but two or three miles to the northward was seen drifting toward us an ominous line of ice which would probably have prevented our advance in that direction, at least for some time. We left Littleton Island on June 24th, homeward bound, and stood down the coast, taking up *en route* the records left for Commander Coffin, of the Alert, as we went north, and substituting for them others which told of the result of the expedition, and directed him to proceed to Disko. Just south of Cape Parry we met seven of the Dundee whalers working their way to the westward, and informed them of the result of our mission. This was the last that we saw of the whalers, and the occasion seems a fit one to say that during our intercourse with them we found the captains at all times courteous and obliging, and we greatly enjoyed their jolly good company. We bade them God-speed, as they did us, and may they have a fine catch. Re-entering Melville Bay on June 27th we found that the recent northerly winds had driven the pack to the southward, leaving an open lane of water, like a canal, through which, with only an occasional block, we readily passed.

On the 30th, off the Devil's Thumb, we met the Alert and Loch Garry struggling manfully through a blind lead, having weakened the floe by torpedoes. The combined squadron then proceeded to the southward, and on the 2d of July the Thetis and Bear stopped at Upernavik to take on the coal left there by the Loch Garry, the other two ships going on to Disko. On the 5th the squadron was once more united at Disko, making preparations for the homeward voyage.

The amputation of Elison's feet having become imperative on account of the sloughing of the old wounds, the operation was performed by the surgeons of the three ships. He had been out of his mind several days previously, yet stood the operation, but, as was feared, had not sufficient strength to endure, and died three days after. On the 7th the remains

of Frederick Christiansen were interred in the graveyard at Godhavn—a detail of officers and men from each of the ships, the Danish officials and the entire native population attending the obsequies. A brief service was held in the small church by the native priest; Mr. Andersen, the Danish Inspector of North Greenland, making a short address in English. On the 8th we bade good-bye to the Danish officials, who here, as well as at Upernavik and Tessinisak, have treated us with marked kindness and hospitality, and on the morning of the 9th the squadron sailed for St. John's.

CHAPTER XXVI.

THE RESCUE—CONTINUED.

Official Reports of the Rescue of the Survivors of the Greely Party—Terrible Sufferings—The Rescued Men frantic with joy—Narratives of Lieutenant Greely and Private Connell—Devotion and Heroism of the Men—How Greely was Rescued, as narrated by a Naval Officer.

ON the 17th day of July the Secretary of the Navy, Hon. William E. Chandler, received the following telegram:

"ST. JOHN'S, N. F., 9 A. M., *July 17th*, 1884.
"*Hon. W. E. Chandler, Secretary of the Navy, Washington:*

"The Thetis, Bear and Loch Garry arrived here to-day from West Greenland. All are well. We separated from the Alert 150 miles north during a gale. At 9 P. M., June 22d, five miles off Cape Sabine, in Smith's Sound, the Thetis and Bear rescued alive Lieutenant A. W. Greely, Sergeant Brainard, Sergeant Fredericks, Sergeant Long, Hospital Steward Biederbeck, Private Connell, and Sergeant Elison, the only survivors of the Lady Franklin Bay expedition. Sergeant Elison had lost both hands and feet by frostbite, and died July 6th at Godhavn, three days after the amputation, which had become imperative.

"Seventeen of the twenty-five persons composing this expedition perished by starvation at the point where found. One was drowned while sealing to procure food. Twelve bodies of the dead were rescued, and are now on board the Thetis and Bear. One, Esquimau Turnsvik, was buried at Disko, in accordance with the desire of the Inspector of Western Greenland. Five bodies buried in the ice fort near the camp were swept away to sea by winds and currents before my arrival, and could not be recovered. The names of the dead which were recovered, with the date of death, are as follows: Sergeant Cross, January 1st, 1884; Wederick, Esquimau, April 5th; Sergeant Linn, April 6th; Lieutenant Lock-

wood, April 9th; Sergeant Jewell, April 12th; Private Ellis, May 19th; Sergeant Ralston, May 23d; Private Whistler, May 24th; Sergeant Israel, May 27th; Lieutenant Kislingbury, June 1st; Private Henry, June 6th; Private Schneider, June 18th. Names of dead buried in the ice fort, with date of death, where bodies were not recovered, as follows: Sergeant Rice, April 9th, 1884; Corporal Salem, June 3d; Private Bender, June 16th; Acting Assistant Sergeant Pavy, June 6th; Sergeant Gardner, June 12th. Drowned while breaking through the newly-formed ice while sealing, Jens Edwards, Esquimau, April 24th.

"I would urgently suggest that the bodies now on board be placed in metallic cases here for safer and better transportation in a seaway. This appears to me imperative. Greely abandoned Fort Conger, August 9th, 1883, and reached Baird Inlet September 29th, following, with the entire party well. He abandoned all his boats and was adrift for thirty days on an ice-floe in Smith's Sound. His permanent camp was established October 21st, 1883, at the point where he was found. During nine months his party had to live upon a scant allowance of food, brought from Fort Conger, that cached at Payer Harbor and Cape Isabella by Sir George Nares in 1875, but found much damaged by lapse of time; that cached by Beebe at Cape Sabine in 1882, and a small amount saved from the wreck of the *Proteus* in 1883, and landed by Lieutenants Garlington and Colwell on the beach where Greely's party was found camped. When these provisions were consumed the party was forced to live upon boiled sealskin strips from their sealskin clothing, lichens and shrimps procured in good weather, when they were strong enough to make exertion. As 1,300 shrimps were required to fill a gallon measure the labor was too exhausting to depend upon them to sustain life entirely. The channel between Cape Sabine and Littleton Island did not close, on account of the violent gales all winter, so that 240 rations at the latter point could not be reached. All of Greely's records and all instruments brought by him from Fort Conger are recovered and are on board.

"The Greely party are very much improved since their rescue, but were critical in the extreme when found, and for several days after. Forty-eight hours' delay in reaching them would have been fatal to all now living.

"Smith's Sound was not open when I left Cape Sabine. The winter about Melville Bay was the most severe for twenty years.

"This great result is entirely due to the unwearied energy of yourself and the Secretary of War in fitting out this expedition for the work it has had the honor to accomplish.

"W. S. SCHLEY, Commander."

On the same day Lieutenant Greely sent the following despatch to the Chief Signal Officer, General Hazen:

"ST. JOHN'S, N. F., *July 17th.*

"For the first time in three centuries England yields to America the honor of having penetrated farthest north. Lieutenant Lockwood and Sergeant Brainard, May 13th, reached Lockwood Island, latitude 83.24, longitude 44.05. They saw from 2,000 feet elevation no land north or northwest, but to northeast Greenland, Cape Robert Lincoln, latitude 83.35, longitude 38. Lieutenant Lockwood was turned back in 1883 by open water on north Greenland shore, the party barely escaping drifting into the Polar Ocean. Dr. Pavy in 1882, following the Markham route, was adrift one day in the Polar Ocean north of Cape Joseph Henry and escaped to land, abandoning nearly everything. In 1882 I made a spring, and later on a summer trip into the interior of Grinnell Land, discovering Lake Hazen, some 60 by 10 miles in extent, which, fed by the ice-cap of north Grinnell Land, drains Ruggles River and Weyprecht Fiord into Conybeare Bay and Archer Fiord. From the summit of Mount Arthur, 5,000 feet, the contour of land west of the Conger Mountains convinced me that Grinnell Land tended directly south from Lieutenant Aldrich's farthest in 1876. In 1883 Lieutenant Lockwood and Sergeant Brainard succeeded in crossing Grinnell Land and, ninety miles from Beatrix Bay, the head of Archer's Fiord, struck the head of a fiord from the western sea, temporarily named by Lockwood the Greely Fiord. From the centre of the fiord, in latitude 80 deg. 30 min., longitude 78 deg. 30 min., Lieutenant Lockwood saw the northern shore termination some twenty miles west, the southern shore extending some fifty miles, with Cape Lockwood some seventy miles distant, apparently a separate land from Grinnell Land. I have named the new land Arthur

Land. Lieutenant Lockwood followed, going and returning on an ice-cap averaging about 150 feet perpendicular face. It follows that the Grinnell Land interior is ice-capped with a belt of country some sixty miles wide between the northern and southern ice caps.

"In March, 1884, Sergeant Long, while hunting, looked from the northwest side of Mount Carey to Hayes' Sound, seeing on the northern coast three capes westward of the farthest seen by Nares in 1876. The sound extends some twenty miles farther west than shown by the English chart, but is possibly shut in by land which showed up across the western end. The two years' station duties, observations, all explorations and the retreat to Cape Sabine were accomplished without loss of life, disease, serious accident or even severe frost-bites. No scurvy was experienced at Conger, and but one death from it occurred last winter.

"GREELY, Commanding."

Another telegram sent by Lieutenant Greely to General Hazen on the same day reads as follows:

"Brainard, Biederbeck, Connell, Fredericks, Long, myself, sole survivors, arrived here to-day, having been rescued at the point of death from starvation by relief-ships Thetis and Bear June 22d, at Camp Clay, northwest of Cape Sabine. All are now in good health, but weak. I abandoned Fort Conger August 9th, and was frozen in the pack off Victoria Head August 29th; abandoned steam-launch September 11th, eleven miles northeast of Cocked Hat Island. When on the point of landing, we were three times driven southwest by storms into Kane's Sea. Finally arrived September 29th in Baird Inlet. Learning by scouting parties of the Proteus disaster, and that no provisions had been left for us from Cape Isabella to Sabine, I moved, and established winter-quarters at Camp Clay, halfway between Sabine and Cocked Hat. Inventory showed that by daily ration, four and one-third ounces meat, seven of bread and dog biscuits, and four ounces of miscellaneous, the party would have ten days' full rations left for crossing Smith Sound to Littleton Island up to March 1st.

"Unfortunately Smith Sound remained open the entire winter, rendering crossing impossible. Game failed, despite daily hunting from early February. Before the sun returned

only 500 pounds of meat could be obtained. During this year minute shrimps, seaweed, sassafras, rock lichens, and seal-skin were resorted to for food, with results as shown by the number of survivors. The last regular food was issued May 14th. Only 150 pounds of meat having been left by Garlington, compelled me to send in November four men to obtain 144 pounds of English meat at Isabella. During the trip Elison froze solid both hands and feet, and lost them, surviving, however, through our terrible winter and spring, until July 8th. The survivors owe their lives to the indomitable energy of Captain Schley and Lieutenant Emory, who, preceded by three and accompanied by five whalers, forced their vessels from Upernavik, through Melville Bay, into North Water at Cape York with the foremost whaler. They gained a yard wherever possible and always held it. Smith's Sound was crossed and the party rescued during one of the most violent gales I have ever known, the boats being handled only at the imminent risk of swamping. Four of us were then unable to walk, and could not have survived exceeding twenty-four hours. Every care and attention was given us. We have saved and bring back copies of meteorological, astronomical, magnetic, pendulum, and other observations; also pendulum, Yale and standard thermometers, forty-eight photographic negatives, a collection of blanks and photographic proofs, Esquimau relics and other things necessarily abandoned. The Thetis will remain here for five days probably."

Commander Schley, in a conversation with the writer, thus described the finding and rescuing of the Greely party:

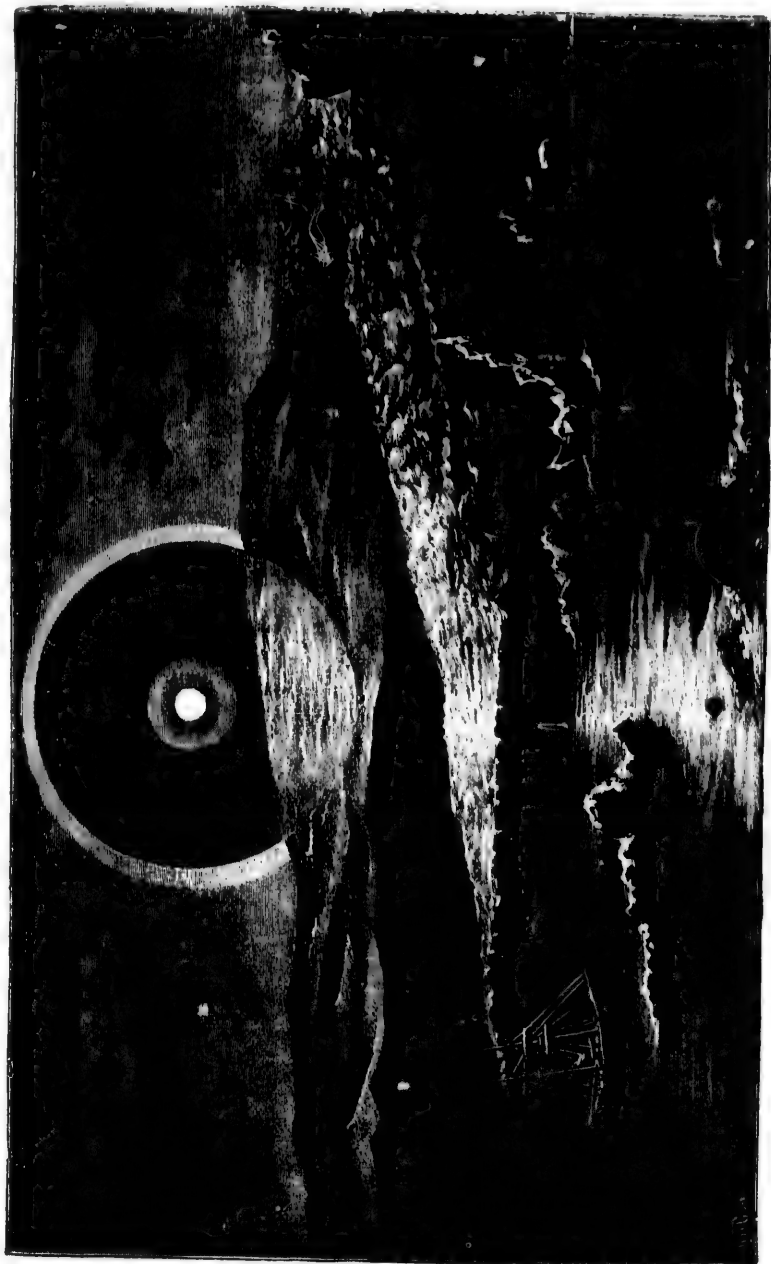
"On the 22d of June, while lying in the drift ice off Cape Sabine, in Smith's Sound, latitude $78^{\circ} 45'$ north, longitude $77^{\circ} 30'$ west, and which forms part of Ellesmere Land, we sighted signals of distress at a distance of about seven miles. It was about 9 o'clock P. M., and the sun shining brightly, but bitterly cold.

"After considerable trouble we steamed down towards the pack-ice upon which they were, and a horrible sight met our eyes. Lieutenant Greely, Brainard, Fredericks, Long, Beiderback, and Connell were crying like children and hugging each other frantically. They seemed frantic with joy. I put off in a cutter, and after great difficulty reached them. They flew at me, and I at first imagined they were crazy. They

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AT ANCHOR IN WHALE SOUND, GREENLAND.

seized each of the men in the boat, hugged them, kissed their hands, and did everything one could imagine to show their joy and gratitude. All but poor Elison. His feet and hands were so badly frozen that he could not move. He lay still on the ground and moaned. The others of the party, also, were more or less frost-bitten, but they seemed to forget their sufferings.

"The party on the ice looked as if they could not live five hours, they looked so feeble, notwithstanding the almost superhuman strength they had shown when we reached them. Slowly, one by one, seventeen of the party had yielded up their lives to the demon starvation. One of them, the strongest, had gone seal-hunting. He never returned. He was drowned while trying to get to a seal before it reached the edge of a floe upon which they were. He missed his footing, fell into a seam in the ice and was seen no more.

"We encountered a gale day before yesterday which was so furious that the Alert separated from us in it. Greely, in his report to me, said that on August 9th, 1883, he abandoned Fort Conger. They travelled northerly, and, after considerable privation and suffering from the cold, reached Baird Inlet on September 29th. There was no one in the party who was not in full possession of health, and, excepting their isolated position, everything was well."

During the trip from the Arctic region to St. John's Lieutenant Greely gave a detailed description at the mess-table of the Thetis of the hardships his party encountered during the long winter in camp on Cape Sabine. The following is the substance of his story:

"When the site for the camp had been selected we set at once to building a house to shelter us from the severities of the winter. Stones were gathered together and piled in walls to enclose a space of about 25 by 17 feet. Over the top of this was placed the whaleboat found at Starknecht Island, left by the Neptune in 1882. This formed a ridge-pole, and the rest of the roof was made by stretching tent and boat-sails down to the sides of the house and pinning them down with rocks. Snow was heaped up to the eaves, which were about five feet high, to keep out the wind. In this miserable hut we laid down from the 1st of November until the latter part of May. From the inside the walls were barely high enough to allow the men to sit up in their sleeping-bags. All during

our retreat from Fort Conger fuel had been a very precious article. Everything was saved, of course, and the strictest watch kept on its issue. There was never enough for more than cooking purposes, so that all during the long, dark, bitter cold days of winter we had no source of warmth except our clothes and sleeping-bags. As a matter of economy cooking was done only twice a day, and then the discomforts from the smoke more than counterbalanced the little warmth which came from the blaze. At times it was suffocating, and the quarters would have to be vacated to save life. The fuel was cut in the smallest pieces, the amount for every fire carefully weighed before serving out, and every precaution taken to drive the heat against the heating surface of the vessel. Much of the heat was expended in reducing the ice and snow to water for our tea and coffee. By using a stove patented by ourselves, with a funnel-cap over the fire, with the kettle at the small end, little escaped its legitimate purpose. At all times during our stay in the Arctic regions we have used brackish water, containing such a percentage of salt that the experience of all other expeditions would have seemed to indicate that violent scurvy should have resulted, whereas we had none excepting a case in January, which was of a mild if not doubtful form. The light was obtained from a miserable Esquimaux lamp, with a single wick dipped in seal-oil, which would furnish light for about eight hours a day. Only one man could read at a time by it, and he had to crouch down close to it. Turns would be taken at reading aloud. All our literature was read and reread.

"The sun disappeared the latter part of October not to come again until the middle of February. No warmth could be obtained from its rays, and it was along in March before it shone on our hut, owing to the high hills around us. The only news that the party received of the outside world during all this time was obtained from scraps of paper taken from a box of lemons landed by the *Proteus* before she was crushed by the ice. We dried these carefully and kept them, so that they could be read over and over again by each one of the party. The lemons were frozen and in a good state of preservation, and were of inestimable value to the men in their weak and debilitated condition. Every Sunday I served out a quarter of a lemon to each person. Bread and meat rations were issued daily: all other stores were issued on

Thursdays. On Sundays the ration was increased a little. At Conger I had been in the habit of letting each man choose his bill of fare when his birthday came, and I tried to keep it up during our reduced days at Camp Clay. Any little divergence that would break the monotony was of great value. Days to come would be anticipated, while reference to those past would occupy us when there were none ahead to look for. A favorite amusement was to make out a bill of fare of what we would like when relief came. The tastes of the men were astonishingly varied, and when we look at them now seem almost ludicrous. I tried to call off their attention from a contemplation of the frightful situation in which we were placed. A series of lectures was begun, and other intellectual amusements, all of which had a highly beneficial effect on the flagging spirits of the party. Two hours a day could be filled in by lecturing on various subjects of personal interest, including the United States, their products, etc. Each State would furnish the data, and when the lecture was over a general discussion would be entered into by all hands, each one expressing his views. Mr. Rice, the photographer, would devote another hour each day, either in telling stories, of which he had a large supply, or else would draw from his stock of general information, of which he had a great deal. Dr. Pavy would give very instructive and carefully thought-up lectures on history, despite the wretched condition of his audience. Six days of the week were occupied in this manner. On Saturday the subject would be moving incidents by flood and field, in which each person would speak in turn. In this manner the personal experiences of those who went on the various sledging and exploring parties became familiar to all, and enables us now to speak most intelligently of all the work we have accomplished. The seventh day we rested quietly, each one with his own thoughts.

"The most trying position of any individual member of the party was that occupied by Sergeant Brainard. Placed in a similar position, not one man in a thousand would have been as faithful to the tempting responsibilities that were allotted him as he was while issuing rations to the party. He found himself, day after day, exposed to the temptation of partaking of more than his share of the rapidly decreasing supplies, but he acted with heroic fidelity, and never in one instance abused the confidence reposed in him by his comrades. In-

deed, he must have used less food than the allotted amount, as the supplies under his care turned out on the approach of spring fully two per cent. more than the most sanguine of the party had dared to anticipate. In this way the dreary weeks and months dragged slowly and hopelessly along, without leaving a ray of hope to light up the souls of that doomed company of victims to the cause of science."

On June 3d the party reached the highest northern latitude by four miles in latitude $83^{\circ} 24' 5''$.

Private Connell, who soon recovered from his sickness, has given the following narrative of the sufferings and hardships experienced by the Greely colonists during their stay in the polar regions:

"After the quarters had been completed a party of five proceeded northward in a whale-boat and established a cache of provisions on the west coast of Robeson Channel, to be used the next spring by exploring parties. This party succeeded in placing a cache at or near Cape Beechey, but on account of the closing in of the ice on the western shore they had to leave their boat until next year and proceed overland to Fort Conger. They were for fifteen consecutive hours at the oars, and had many narrow escapes from being crushed by the heavy ice drifting south in Robeson Channel. In November of the same year Lieutenant Lockwood, with a party of eight men, undertook to cross Robeson Channel to the Polaris' winter-quarters of 1871, but on account of the darkness and of the ice being still in motion, the party had to return to the station. This was the last party that went in the field of exploration in the year 1881. The party then settled down in their dreary home until the return of the sun, which disappeared below the horizon on October 16th, and did not return again until March 1st. The monotony of the dark winter was relieved by lectures by the officers of the expedition and other amusements gotten up by the men. In the spring of 1882 the whole party were reported in good health by the surgeon, and preparations were made for explorations to the north and northwest. Lieutenant Lockwood, Sergeants Brainard and Jewell, and one native, with a dog-sledge, on the first day of March, crossed Robeson Channel to Hall's Rest, from there to Newman's Bay and back again to Fort Conger, where they arrived on the 10th. This party travelled while the temperature was 58° Fahr. below zero, and were storm-bound for

three days in Newman's Bay. Another party, under charge of Sergeant Brainard, started on March 12th to place a boat and small depot of provisions near Cape Summer on the south side of Newman's Bay. This party had a very cold temperature during the night of the 12th, the index-pen going into the bulb of the thermometer, the thermometer graduating to 61° below zero. They returned to the station on the evening of the 20th, none the worse after their cold experience. On March 19th Dr. Pavy and Sergeant Rice, with Esquimaux and a dog-sledge, started north to try and find out if any land could be discovered north of Cape Joseph Henry. They met with open water, and, drifting on the ice-floe for two days north of Cape Hecla, losing all their camp-equipage on the floe and barely escaping with their lives, they returned to Fort Conger, arriving there on May 1st. The next party, under the command of Lieutenant Lockwood, to explore the north coast of Greenland, started on April 3d, a supporting party going as far as Cape Bryant, when Lieutenant Lockwood, with Sergeant Brainard and one Esquimaux and dog-sledge, proceeded north, reaching Jackwood Island on May 11th, latitude $83^{\circ} 24'$.

"They named Cape Robert Lincoln, in 85° north, planting the stars and stripes nearer the north pole than any other flag afloat. The third party, under Lieutenant Greely, started westward on May 25th, and made important discoveries in that direction, discovering a fiord leading into the Conybeare Bay. Leading from the northwest into this fiord a beautiful river discharges, its mouth about two miles wide. Its length is about twenty miles, and it was open at its head when the party arrived there on the last day of April. The outlet of this is now a beautiful lake, surrounded on the north and west side by a range of mountains, where a number of glaciers were cropping through and discharging into the lake. Several musk oxen, wolves, hares and ptarmigans were seen in the vicinity of this lake, and the party claims that without a doubt the musk ox winters in or about the vicinity of the lake, and does not migrate, as some Arctic authorities claim. Lieutenant Greely's party returned to the station on May 10th. This finished the important sledging parties for the spring, Lieutenant Lockwood returning on June 1st, about which time the ice commenced to break up. Lieutenant Greely, however, made another journey, with a cart and

packs, in June, extending his previous explorations farther to the westward. The ice in Kennedy's Channel broke up early in July, and the channel was entirely clear of ice in the first days of August. Lieutenant Greely went in the launch to Cape Cracroft on August 12th, and could see no ice to the southward as far as could be seen by a powerful telescope from an elevation of about 400 feet. The party could not understand why a ship did not reach them, the season being such an open one to the north. They were disappointed but not discouraged. During the summer and fall a great quantity of musk ox meat was procured, which lasted throughout the winter, giving a fresh meat diet three times a week.

"We settled down to our second winter in the Arctic regions, and carried out about the same general routine that had been observed during the preceding winter. Every one was very cheerful with the coming of spring again. The health of the party was reported good by the surgeon. There were caches laid out at Cape Baird early in February, 1883, to be used in case of a retreat southward. In the first days of March Lieutenant Lockwood, Sergeant Brainard and Sergeant Jewell made a preliminary trip to Newman's Bay before starting to extend their previous discoveries along the Greenland coast, and returned to the station after an absence of five or six days. In the latter part of March Lieutenant Lockwood, with two sledges, started on the trip for which he made the preliminary one, but on account of meeting a large extent of open water to the north of Repulse Harbor, extending across to Lincoln Bay on the Grinnell side and northward as far as he could see, he had to return to the station. In the meantime a party left the station for Polaris Harbor, and brought across an English 20-foot iceboat, which had been left there by Lieutenant Beaumont, of the Nares expedition of 1875 and 1876. On April 25th Lieutenant Lockwood and Sergeant Brainard, with one native and a dog sledge, started westward to extend Lieutenant Greely's explorations, and discovered on May 13th an arm of the Western Ocean in the shape of a large fiord; also a large glacier extending across the face of Grinnell Land, north and south, which they compared to the Chinese wall. This glacier is probably the largest that has ever been discovered excepting the Humboldt. Its face is much longer and higher than the Hum-

boldt, however, and a most remarkable feature of it was its faithful resemblance to the surface of the earth, exhibiting hill and valley. It was practically an ice cap, through which only the highest peaks projected. The name of this glacier was subsequently changed to Agassiz Glacier. They being already on short rations, were compelled to return to Fort Conger. This fiord, which is an arm of the Western Ocean, they explored for a distance of twenty miles. Ascending an elevation of about a thousand feet, where they could see the headlands terminating this fiord, the Western Ocean could be seen several miles beyond, proving conclusively that Grinnell Land is an island. The party returned to the station about May 27th. Lieutenant Lockwood and Sergeant Brainard made another trip toward the United States Mountains, due north from the station, and found that the north of the mountains was entirely ice, capped with several glaciers discharging through the gaps and valleys of the mountains.

"Nothing further was done this summer in the line of exploration. No ships arriving by August 5th the party abandoned the station and retreated southward in three boats, in tow of the steam-launch. By taking advantage of westerly winds and the state of the ice leads opening along the shore, they reached Cape Hawkes by August 26th, picking up a cache of provisions there. Viewing from Washington Irving Island open water as far as Cape Sabine, Lieutenant Greely concluded to keep on with the launch and boats to Cape Sabine; but before reaching there, the ice closing in and the temperature that night going below zero, the boats were hauled on the floe, where further developments of the ice were awaited. We drifted with the whole pack, the general drift being south toward Cape Sabine. On September 9th the launch and two boats were abandoned, the party with sledge, iceboat and rations making over the ice toward Cape Sabine. It was necessary for the party to travel five miles to make one mile good. When within about six miles of Cocked Hat Island a southwesterly gale sprang up and drove them back into Kane's Sea again. Three or four days after we made another attempt to reach the shore with boat and sledge, this time getting within two miles of the shore, but a northerly gale drove the ice southward past Cape Sabine. This gale lasted four days. The floe on which the party were drifted as far south as Baird Inlet, where they got off the ice. On

September 29th preparations were made for wintering until such time as the condition of the ice would permit a passage across to Littleton Island. In the meantime Sergeant Rice was sent to Cape Sabine to see if any record or rations were there. Discovering the little that had been left there by the *Proteus* and *Neptune*, it was then decided that the whole party should move to Cape Sabine and winter in that vicinity, erecting a snow hut. Collecting all rations and clothing the party were moved in by November 1st. On November 1st Sergeant Rice with three men went to Cape Isabella with a small sledge to bring 150 pounds of canned meat left by Sir Allan Young, of the *Pandora*, afterward the *Jeannette*, in 1876.

"After leaving Cape Isabella on the return trip Corporal Elison got his feet and hands badly frozen, and, being entirely exhausted, the abandonment of the meat was necessary in order that he should be hauled on the sledge toward the camp. Sergeant Rice came on ahead to send a party back for relief. They started at once under Lieutenant Lockwood and Dr. Pavy to bring Elison home on a large English sledge. He lost his hands and feet during the winter. On February 1st Sergeant Rice, with Esquimaux, tried to reach Littleton Island to see what there was there, in case we had to move on March 1st, but on account of Smith's Sound being open throughout the winter they were compelled to return after an absence of six days from the snow hut. Smith's Sound continued open throughout the entire winter and spring, and was so at the time of the arrival of the relief ships. Death from starvation commenced April 4th—Cross having died of scurvy January 18th—and the last was on June 19th. For my part three hours later would have finished me, and an arrival on June 17th might possibly have saved Schneider—not later. The rest of my story you know better than I do."

In regard to the heroic death of Sergeant Rice, Mr. Connell said: "Not seeing any chance of getting to Littleton Island, and no provisions being on hand, Sergeant Rice volunteered, with one man, Sergeant Fredericks, to try and recover meat that had been abandoned on an ice floe the previous fall. Leaving the sleeping-bags and rations at the huts that had been built at Baird Inlet, he proceeded with an empty sledge to Shelter to find the meat and regain his little cache

at the huts. A severe and cold storm coming on that evening he died of exhaustion and exposure on the floe. His last words were: 'Tell Lieutenant Greely that I tried very hard to get the meat, but could not succeed.' Fredericks remained with Rice until he died, and then returned to Shelter. Coming back the next day to bury Rice on the ice floe, Fredericks himself hauled the sledge and sleeping-bags back to the camp."

The following interesting summary of the voyage of the Greely relief expedition is furnished by one of the officers who took part in the gallant rescue:

"The transfer of the remains of the dead of the Lady Franklin Bay expedition to Major-General Hancock, of the United States Army, completes the last act of the tragedy, so far as the squadron is concerned, and the Greely relief expedition of 1884 becomes a thing of the past.

"The ships will go to the Navy Yard at Brooklyn, where they will be put out of commission, the *Thetis* and *Bear* to be sold in accordance with the provisions of the act of Congress which authorized their purchase, and the *Alert* probably to be returned to England with the thanks of the American people for her generous loan.

"It is a great pity that the first two of these vessels cannot be retained in the naval service, as they would be very useful in deep-sea surveys such as have been carried on in the Pacific for some years past by the *Tuscarora* and *Ranger*, which were thus diverted from their legitimate duties. They are staunch and excellent sea-boats, economical under steam and easily handled under sail by a very small crew, with ample stowage capacity for coal and provisions, and comfortable quarters for officers and men. Why sell them, then, when they can be utilized by the government in many ways? They are very evenly matched, though the *Bear* is the faster of the two by perhaps half a knot, but either of them is capable in fine weather and smooth water of eight knots per hour on an expenditure of seven tons of coal per day under steam alone, with an increase of from one to two knots per hour if the wind favors. With a head wind and sea the *Bear*, on account of her sharp bow and lean model, loses less in speed than the *Thetis*, while the latter, with bluff bow, greater breadth of beam and kettle bottom, is superior as a sea-boat, and better for the work, as, having less length, she answers her helm

more readily. Both, however, are most excellent ships, and none better could have been found for the service on which they were sent. Though not seriously injured by the rough usage which they necessarily received while navigating in the ice and through unsurveyed seas, neither of them returns wholly unscathed. Both struck twice, at different times, on unknown rocks, and the Thetis lost a part of her jib-boom by collision with an iceberg, and injured her rudder to such an extent that it was found necessary to ship a spare one, while Mrs. Thetis, the mother of Achilles, who poses as figure-head of that ship, has been converted into an Amazon by the loss of her right breast, the result of 'riding it out,' as Dr. Kane expresses it, 'in lee of a friendly berg.'



HOME OF THE EIDER DUCKS.

"Now that it is all over we conclude that we did not have a bad time of it altogether, except the commanding officer, the measure of whose responsibility it is impossible to over-estimate. The temperature was seldom very low, 12° to 15° Fahr. being the lowest recorded, and generally it was quite mild. There was a great deal of snow, and it was not comfortable to stand watch for four hours in a driving storm, but we were warmly clad, and soon became accustomed to it. Working through the ice possesses a strange fascination, which, together with the insomnia induced by continuous daylight, frequently kept us up all night. When we were forcing a lead the fore-castle-rail would generally be filled with officers and men hanging over the bow and watching the ship as she

rose on the floes, gliding upon her forefoot and breaking through, sending the fields of ice to the right and left, if there was room for them to separate, or, as was more frequently the case, backing off for another blow. Sometimes torpedoes were resorted to for the purpose of weakening the ice and thus enabling the ship to bore through; but we were much disappointed in the effect of these. However, they were used once at a very critical moment to good purpose. Just north of Cape Dudley Digges the Thetis encountered a neck of very thick ice some sixty feet across, connecting two large floe pieces and separating us from a very fine lead. Ramming failed to force a passage, and left us with our bow jammed high and dry on the floe so that the engines could not back her off. Six torpedoes were accordingly laid—four of gunpowder in line ahead, one of gun-cotton and one of gunpowder on the starboard-bow, holes being bored for them through the ice, so that they could be dropped down about four feet below the surface of the water. They were exploded simultaneously, and so eased the nip that, by reversing the engines, we immediately glided off, and the floe ahead was so cracked that we had now no difficulty in boring through. This was on the 19th day of June, only three days before the rescue, when a delay of only a few hours might have been fatal to some of the little band of survivors at Camp Clay. The gunpowder torpedoes invariably gave more satisfactory results than the gun-cotton, the latter being too quick in their action, so that they simply blew clean holes in the ice from six to ten feet in diameter, without making any lateral fracture.

"After we got north of Disko the shooting was fine. Dovekin, loons, and eider ducks were abundant, and, after reaching the north water at Cape York, we had the little auk, the most toothsome of all Arctic birds, and the only one that is not more or less fishy in flavor. At Littleton Island, on the day after the rescue, when the procuring of game was an object, in order that we might have fresh meat for the survivors, parties from the two ships bagged more than three hundred eider ducks in a few hours' time. With larger game we were less fortunate. Only two polar bears were seen, one of them too far distant to go after, as the ships were under way at the time, while the other was shot by one of the men on board the whaler Arctic. We ate of the steak of this, a last year's

cub, and found it quite palatable, though the meat was very coarse in texture and a little fishy. One of our finest dogs (Growler) partook freely of the liver and died with fits the next day. It is a peculiar fact, which has been commented upon by nearly every Arctic explorer, that the liver of the white bear is poisonous to both man and beast, though so far as I know no one has ever ascertained the cause.

"In our intercourse with the captains of the Scotch whalers we found them to a man jovial and genial good company, always ready to give us the benefit of their experience in the ice, though they made no secret of the fact that they would use every endeavor to secure the reward of \$25,000 offered by Congress to any but a national vessel for the recovery or information as to the fate of the Greely party. After leaving the Duck Islands, the Arctic, Aurora and Wolf were generally in company with the ships of the expedition, but upon one occasion, the Aurora, Captain Fairweather, after waiting thirty-six hours with her nose tied up to a point in the ice where the prospect of a lead seemed favorable, gave up, and standing in toward the land tried to work an inshore lead. She had scarcely left us when the lead opened and the remaining four ships stood on, making a fine run toward Cape York. Several days afterward, however, the Aurora, by main energy, came up with us again, and, referring to his mistaken lack of patience, Captain Fairweather remarked: 'I said to myself, ah, Jem, mon, you're a dom fool; the boys have beaten you.' But she was the first ship finally to reach the open water. The Arctic, Captain Guy, had generally led the van, and was by all odds the largest and most powerful ship in the fleet; but on the evening when we made our last start, before arriving at Cape York, she was so completely embayed in the ice that it was some time before she could get clear and follow. We preceded her into the north water by about an hour.

"When tied up to the ice waiting for a lead visits were freely interchanged between the ships of the expedition and the whalers, and the latter initiated us into the mysteries of what they call a 'mollie,' which term is adopted from the 'molle-moke,' a noisy, chattering sea-bird, which feeds on the refuse of the whales caught. The captain of one of the ships desiring to entertain his friends hoists a bucket at the mizzen topgallantmast head. This in a well-regulated, civil-

ized port would indicate a desire to have the water boat alongside to supply the ship with fresh water. But here it means anything but water. The captains of the other whalers in sight repair on board, and with Scotch whiskey and clay pipes, interspersed with yarns, they make a night of it. Mere words are inadequate to describe these entertainments, and perhaps the terse style which an English acquaintance of mine adopted in relating his experiences on board a Russian frigate will give the best idea of them. He would say, as if intending to spin you a long yarn, 'Let me tell you about my visit to the Russian flagship. I went on board and they gave me a drink which they called "cadet punch," and they oisted me over the side with a thing they called a w'ip.'

"Our fare on board the ships of the relief squadron was excellent. We were provided with everything possible in the way of food, and forward and aft alike lived like fighting cocks.

"The punch was made of rum which had been left in a cache on Littleton Island by Mr. W. H. Beebe, Jr., who commanded the Greely relief expedition of 1882, and was most excellent, and the more welcome, as although lavish in the supply of good things to eat, no drinkables were allowed us by the Board which supervised the fitting out of the expedition, except such as was in the hands of the surgeon for medicinal purposes only. At Disko, Upernavik and Fessinsak the Danish officials treated us with marked courtesy and did everything in their power to forward the object of the expedition. At Godhavn, Disko Island, the capital of North Greenland, a village of about one hundred inhabitants, the men were given a run on shore and had a dance with the Esquimaux belles. And they can dance, not even our own American girls, who are generally conceded to excell all others in the Terpsichorean art, beating them, though it must be admitted that the sealskin knee-breeches and boots worn by the latter are better adapted to ease and grace of movement than the cumbersome skirts affected by their more civilized sisters.

"One of the features of the expedition was getting the Loch Garry to Upernavik so early in the season as May 29th. She was the first iron vessel that had ever visited that port, and when she sailed from St. John's the prediction was gen-

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eral that 'that iron box would never return.' And in arriving so far west as the Devil's Thumb, under the convoy of the Alert, where they were met by the Thetis and Bear on their return trip, June 30th, both vessels accomplished all that was expected of them. This was a pleasant reunion. A fog coming on soon after we met them, the four vessels made fast to the ice, and visits were freely interchanged across the



ESKIMAU AND KAIYAK.

floe and congratulations received upon the result of the expedition. It presented a very animated scene as the ships steamed up to the ice, three or four men hanging under the bow until the prows struck the ice, when they immediately dropped down. An ice anchor, ice auger and hawser were dropped over to them and in the twinkling of an eye we were fast. So much for the Greely relief expedition of 1884. We

have been most handsomely received and commended for what it was made possible to accomplish by the splendid manner in which the ships were fitted out under the direction of the Honorable Secretary of the Navy, and, with a secret satisfaction in having been instrumental in the work of relieving Greely's starving party, we have no favors to ask, no complaints to make; and while we would gladly, under similar circumstances and the same leadership, undertake another trip to the Arctic, none are ambitious to attempt an original exploration in that quarter, and all are willing to postpone the organization of the next naval Arctic expedition until the time proposed by Secretary Chandler in his reply to an address delivered by the latter at the meeting of welcome in Portsmouth, N. H., in which he advocated further advances toward the North Pole.

CHAPTER XXVII.

A HORRIBLE DISCOVERY.

Cannibalism in its Worst Form—Private Henry Shot from Behind and his Flesh Eaten—Lieutenant Greely on the Cause of the Execution—Henry Accused of having Stolen Rations—Sergeant Elison on his Death-bed declares the Shooting of Henry Unjustifiable—Who is to Blame for the Sufferings of Greely's Men?—The Relief Squadron Arrives at Portsmouth Harbor—Naval Welcomes for the Thetis, Bear, and Alert—Reception in the Town—Reunions of the Survivors and their Relatives—Mrs. Greely Arrives—A Thrilling Reunion.

WHEN the vessels of the Greely relief expedition reached St. John's, the world was told that only six members of the Greely colony were living. One had been drowned, one had died on the way home, and seventeen, it was said, had perished by starvation. This was a shocking story, but soon a much more terrible one was to be told. When their food gave out the unfortunate members of the colony, starving in their tent on the bleak shore of Smith's Sound, were led by horrible necessity to become *cannibals*! The complete history of their experience during that terrible winter has afterwards been told by one or the other of the survivors, and makes one of the most dreadful and repulsive chapters of the annals of Arctic exploration. Greely and his surviving companions were forced to choose between death and this way of preserving life, and they have chosen the latter. From July, 1882, to August, 1883, not less than 50,000 rations were taken in the steamers Neptune, Yantic, and Proteus up to or beyond Littleton Island, and of that number only about 1,000 were left in that vicinity, the remainder being returned to the United States or sunk with the Proteus. Two costly expeditions had taken those provisions to Smith's Sound, but Greely and his men gained practically no benefit from them. Greely's instructions and the plain teachings of common sense were disregarded. He foresaw that he might be compelled to retreat down the west shore of Smith's Sound; he could establish provision depots along the upper part of the

line, but those below must be established by the relief parties. In his instructions he pointed out the spots on the west side where food should be placed, and then directed that a colony should be established on the other shore. He even foresaw that he might reach Cape Sabine and then be unable to get across; therefore, he directed that the relief colony should not only strive to find him by telescope but should also send sledge parties to the west side, to rescue him. His instructions were not heeded, and the terrible sufferings, the death, and the cannibalism of Greely and his men resulted from this neglect.

It will be remembered that in Commander Schley's first despatch to Secretary Chandler announcing the finding of the Greely party he said:

"I would urgently suggest that the bodies now on board be placed in metallic cases here for safer and better transportation in a seaway. This appears to me imperative."

As Mr. Chandler was in West Point, the despatch was answered by Rear-Admiral Nichols, Acting-Secretary of the Navy. He said:

"Use your own discretion about care and transportation of bodies."

Secretary Chandler afterward telegraphed:

"Prepare them according to your judgment and bring them home."

It took some days to prepare the iron caskets, which were all bolted and riveted. It was remarked at the time by experienced officers that this would hardly have been necessary for the preservation of the frozen bodies. They could safely have been brought on, without any delay, in wooden coffins. The design was obviously to prevent all possibility of friends of the deceased being given an opportunity to look at their remains for the purpose of identification or otherwise. Even the sailors on the relief ships, with the exception of a few men who assisted in removing the bodies, were not allowed to see them. The lips of the officers were sealed. When Commander Schley met Secretary Chandler and General Hazen at Portsmouth, August 2d, on the arrival of the ships from St. John's, he was very much agitated, and called the gentlemen into the cabin of the vessel, where he communicated to them those terrible facts.

The sufferings and privations of the men in their canvas

hut during the long, bitter winter of 1884 have not half been told. It has been published that after the game gave out early in February they lived principally on sealskins, lichens, and shrimps. As a matter of fact, they were kept alive on human flesh. When the rescuing party discovered the half-starved survivors their first duty was to look to the two men who were insensible from cold and privation, even to the point of death. One of them, a German, by the name of Sergeant Elison, was wild in his delirium.

"Oh," he shrieked, as the sailors took hold of him to lift him tenderly, "don't let them shoot me as they did poor Henry. Must I be killed and eaten as Henry was? Don't let them do it. Don't! Don't!"



KILLING SEALS.

The sailors were horrified, but at once reported the man's words to Commander Schley. After a brief investigation he felt satisfied that the poor fellow was speaking the truth, and that some of the men who perished had been stripped of their flesh to keep their surviving comrades alive. Mr. Schley proposed to make thorough work of it. When the horrible reality was brought out before an investigating committee he did not propose to have it rest solely on his oral testimony. He instructed two or three gentlemen, among whom was Dr. Ames, the surgeon of the Bear, to make a careful examination, and put their conclusions in writing. This was done,

and the reports are now in the hands of the Navy Department. Lieutenant Greely was decidedly averse to having the bodies of the buried dead disturbed. He thought it wise, as they had been buried so long, to let them remain in their Arctic graves. Commander Schley did not agree with him. The bodies were dug from their graves in the little hill just back of the permanent camp established in October, 1883. Most of the blankets contained nothing but heaps of white bones, many of them picked clean. The remains could be identified only by the marks on the blankets. By inquiries Commander Schley discovered that many of the seventeen men who are said to have perished from starvation had been eaten by their famishing comrades. It was the one last resort. Provided supplies had not arrived, death stared the hungry and crazed men in the face, but there was hope if life would hold out for even a few weeks. It is reported that the only men who escaped the knife were three or four who died of scurvy.

Charles B. Henry's death was particularly tragic. He was a young German, his real name being Charles Henry Bach, without any relatives in this country, and joined Company E, Fifth Cavalry, in Cincinnati. His friends tried to dissuade him from going with the expedition, but his spirit of adventure was aroused by tales of Arctic exploits, and he determined to go. Driven to despair by his frightful hunger, Henry saw an opportunity to steal a little more than his share of rations, and he made the attempt. He was found out and shot for his crime. In the published official report the death of this man is set down as having occurred on June 6th. When the body was found his hands and face, though shrunken, were intact and recognizable; but nearly everywhere else the skin had been stripped from him and the flesh picked from the bones. Even his heart and lungs were eaten by his comrades. One rib was found shattered by a bullet ball, and to another small fragments of lead were attached. A bullet hole was found in the skin. The body was in this condition when it was interred.

In an interview Lieutenant Greely thus spoke of the death of Henry:

"The tragic end of Private Henry was first referred to, and Lieutenant Greely admitted that the man was shot by orders on June 6th. As early as March, before the party went into

its summer camp, it was suspected that Henry had been secretly possessing himself of much more than his share of the slender stores, and this suspicion finally becoming a certainty the Lieutenant had the utmost difficulty in protecting the culprit from the natural indignation of his comrades. Henry was at one time discovered intoxicated, having broken into the stock of liquors, and it became necessary, in order to preserve the all-important discipline of the little party, to warn him that a summary military execution would follow further depredations.

"Events proved that this warning was of not the slightest avail. Henry, impelled by his bitter hunger, stole, among other provisions, two pounds of bacon. The eating of this large amount of meat made him ill and disclosed his selfish crime to the other members of the party. A search was at once instituted, and it was discovered that, with other articles, Henry had stolen and secreted the sealskin boots of the hunter of the expedition.

"Lieutenant Greely thereupon issued written orders that Henry be shot for disobedience, and, though the Lieutenant was unable to leave his tent, the orders were carried into effect. Three men were detailed to perform the duty, and in the rifle of one of the three a blank cartridge was inserted. Lieutenant Greely stated that he himself would have shot the man had it not been for the exhaustion which from May 24th, the date of the beginning of the summer camp, had confined him to his quarters. As it was, the Lieutenant did not witness the execution or see the body before burial.

"Henry was, as Lieutenant Greely asserted, the only one of the party who caused any trouble. It was understood by his comrades that he was a deserter from the Seventh Cavalry, and that charges of forgery and theft had been made against him some time previous to his departure on the Arctic expedition. A detailed report of Henry's execution was sent to the Secretary of War by Lieutenant Greely about a week ago.

"As to the eating of human flesh, Lieutenant Greely stated, with much feeling, that, so far as his personal knowledge went, no act of this sort had been committed by any one connected with the party, and that, if anything of the kind occurred, it was an individual act, utterly unauthorized and heartily deprecated."

The following is Lieutenant Greely's official report of the execution of Private Henry, at Camp Clay, near Cape Sabine:

"PORTSMOUTH, N. H., August 11th, 1884.

"To Adjutant-General United States Army (through Chief Signal Officer, United States Army):

"SIR—I have the honor to report that on June 6th, 1884, at Camp Clay, near Cape Sabine, Grinnell Land, it became necessary for me to order the military execution of Private Charles B. Henry, Fifth Cavalry, for continued thieving. The order was given in writing on my undivided responsibility, being deemed absolutely essential for the safety of the surviving members of the expedition.

"Ten had already died of starvation and two more lay at the point of death. The facts inducing my action were as follows:

"Provisions had been stolen in November, 1883, and Henry's complicity therein was more than suspected. March 24th, 1884, the party nearly perished from asphyxia. While several men were unconscious and efforts were being made for their restoration, Private Henry stole about two pounds of bacon from the mess stores. He was not only seen by Esquimau Jens Edwards, but his stomach being overloaded he threw up the undigested bacon. An open investigation was held, and every member of the party declared him guilty of this and other thefts. A clamor for his life was raised, but was repressed by me. I put him under surveillance until our waning strength rendered his physical services indispensable. Later he was found one day intoxicated, having stolen the liquor on hand for general issue. A second time his life was demanded, but I again spared him. On June 5th, thefts of provisions on his part having been reported to me, I had a conversation with him, in which I appealed to his practical sense, pointing out that union was necessary to our preservation. He promised entire reformation, but distrusting him I issued a written order that he should be shot if detected stealing.

"On June 6th he not only stole part of the shrimps for our breakfast, but visiting unauthorized our winter-camp, stole certain sealskin reserved for food. I then ordered him shot. On his person was found a silver phonograph, abandoned by me at Fort Conger and stolen by him. In his bag was found

a large quantity of sealskin and a pair of sealskin boots, stolen a few days before from the hunter. Suspecting complicity on the part of several, I ordered his execution by three of the most reliable men. After his death the order was read to the entire party, and was concurred in by every member as being not only just, but as essential to our safety. To avoid public scandal I ordered that no man should speak of this matter until an official report was made of the facts.

"I have the honor to request that a court of inquiry be ordered or a court-martial convened, should the Honorable Secretary of War deem either advisable, in this case. I have thought it best not to ask the written statements of the surviving members of the party for appendices to this report, lest I might seem to be tampering with them. I have not asked since our rescue, June 22d, whether opinions concurring in my action have changed or not, leaving such questions to your action, if deemed requisite. I necessarily regret that circumstances imposed such a terrible responsibility upon me, but I am conscious that I should have failed in my duty to the rest of my party had I not acted promptly and summarily. I am respectfully yours,

"A. W. GREELY,

"First Lieutenant Fifth Cavalry, A. S. O., and
Assistant Commander of L. F. B. Expedition."

Sergeant Elison, like Henry, a German, who died on board of the Bear of exhaustion, communicated to three Scandinavian sailors of that ship, named Knudson, Dirkson, and Derikson, how Henry was shot. "About forty days before we were rescued," he said, "we were absolutely devoid of any food or means of subsistence except our sealskins, our boots, and now and then a bird, which was shot by Brainard or Long. Lieutenant Greely was for weeks so weak and sick that he was unable to leave the tent. My arms had been frozen, and I therefore was unable to use them, so Lieutenant Greely, although sick himself, kindly attended to my wants, feeding me like a baby. But soon he became so weak that he had to be fed by Sergeant Brainard, and during this time Sergeant Long had the sole control over the camp. Lieutenant Greely always treated us kindly and with consideration. Henry was one of the best and most reliable members of the colony, and, as far as I know, was never reprimanded or punished for disobedience of orders, or any other misdemeanor.

Long was opposed to Henry from the beginning, and I am satisfied that the charges of larceny against Henry were trumped up by him and his chum Fredericks. On June 25th Lieutenant Greely signed the order of the execution of Henry, who had been charged with stealing bacon. The paper was handed to him by Long. Concerning this charge, I can only say, that during the last forty days not an ounce of bacon could be found in the camp. On the 26th day of June Lieutenant Greely was in a helpless condition, and unable to know what was going on outside. On this day Sergeant Long killed Private Henry by shooting him in the back, and then reported to Lieutenant Greely that the execution had taken place, adding that Henry had been intoxicated. Henry was searching for victuals when he was shot. On the same day Long shot two ptarmigans, which fact he concealed from his companions. Henry's body, from which flesh was cut off, was left unburied until the day when the rescuing ships hove in sight. The shooting of Private Henry was entirely unjustifiable, and nobody is to blame for it but Sergeant Long. He and Fredericks were the only members of our party who could walk on board of the steam-launch, the others had to be carried there by the sailors."

Elison was found in a condition which makes his allegations, to say the least, suggestive of inaccuracy.

In an interview Lieutenant Greely on the 13th day of August gave the following semi-official account of the events of the latter part of the retreat southward from Fort Conger, which can only be made more explicit but no more impressive by his official report:

About November 1st the party began to be served with one-quarter rations, and debilitated health soon showed the effect of this insufficient amount of food. The men were not before this in as good condition to withstand Arctic weather as they had been a year before. About November 1st provisions were missed from the stores, and it was concluded that they must have been stolen. Much complaint was made by the men, and threats against the thief were loud. January 24th the party was near perishing from asphyxia and several of its members were unconscious.

Private Henry during this terrible experience was seen by one of the Esquimaux to steal some of the bacon from the stores. He soon afterwards was taken ill from overloading

his stomach and vomited up the bacon undigested. An investigation was had and Henry was proved guilty not only of this but of several previous thefts.

It was a terrible state of affairs. Henry's indignant comrades demanded his death. Over and over again Henry promised to reform, but this did not still the clamor for his life.

Lieutenant Greely remonstrated with his men and all was quieted. Taking Henry in hand, Lieutenant Greely represented to him the enormity of his offence and pointed out to him the necessity for concerted action in the party if all would be saved. Henry was then placed under guard for several weeks, until the increasing feebleness of the other members of the party rendered it necessary for them to avail themselves of Henry's personal services. Shortly afterwards he stole liquor from the stores and became intoxicated. Again his comrades clamored for his life, and again Lieutenant Greely restrained them.

On June 5th Henry again stole and carried away some of the provisions. Lieutenant Greely spoke firmly to Henry and told him it would be policy for him to stop. Said the lieutenant: "For God's sake, Henry, as you seem to have no moral sense, remember that our lives depend upon our holding together."

With great earnestness Henry promised not to be guilty of theft again. Lieutenant Greely felt that he could not trust Henry. After revolving in his mind their circumstances the lieutenant, on his own responsibility, issued a written order, now in the possession of one of the survivors, commanding that Henry be shot on sight of commission of any more thefts of food.

At this time the party had left, as a last resort, only pieces of sealskin and such shrimps as they could procure. About June 6th Henry went to the old winter quarters at Camp Clay, near Cape Sabine, and stole some of the last sealskin, which was the only food left. He also took the last pair of boots in the stores. On being closely questioned by Lieutenant Greely, he admitted his guilt. He was again ready with promises to do better. His fate was upon him.

He was, in the afternoon of that day, a little distance at the rear of the summer quarters, alone by himself. The written order for his execution was committed to three of the party.

They were ordered to shoot him, encountering as little danger themselves as possible, as Henry was the strongest of the party.

Sadly the men departed on their terrible errand. Their comrades left in camp turned their eyes to the ocean.

In a few minutes the breeze bore to their ears the sound of two quick pistol-shots. All were silent. Slowly, after a short interval, the men returned. The written order was handed to Lieutenant Greely, and the horrible but necessary execution was over. Henry was never seen again by his comrades, and his body was understood to be interred at the foot of the northwest ice floe.

The order for the execution of Henry was that afternoon read to the survivors, and all concurred in the justice and necessity of the act. No report of the manner of his death has ever been made to Lieutenant Greely, and the survivors tacitly ignored the terrible remembrance.

All through the retreat the discipline, with the exception of Henry's thefts, was well maintained and all yielded implicit obedience even to the last dread day on Cape Sabine.

A verbal report was made to General Hazen by Lieutenant Greely shortly after the arrival of the relief expedition at Portsmouth. In regard to the execution of Henry General Hazen said: "It was not only justifiable, but the noblest thing in the expedition."

A written report was submitted by Greely to the War Department a few days ago fully covering Henry's case, and a court-martial has been asked for by Lieutenant Greely if the facts seem to the War Department to warrant it.

In closing Lieutenant Greely said: "I regret that the responsibility of deciding Henry's case was thrust upon me, but I feel that I should have failed in my duty to the rest of the noble men of my command had I not acted as I did."

Whether the four bodies which were swept out to sea and never recovered would have added further evidence to this story of horrible cannibalism cannot be learned now, though the papers in the possession of the Navy Department give all the particulars as told by the survivors. At first they were loth to talk of the horrible experience they had passed through, but after promises of absolute secrecy their evidence was all taken in writing. Lieutenant Greely said that he wished the men had been rescued by the army instead of the

navy. Of course it was impossible to keep the actual state of affairs from the crew, but absolute silence was imposed upon them. The officers were not allowed to talk of what had occurred in their presence. One man who openly spoke in the mess room about the inhumanity of using fragments of human flesh as bait for shrimps was severely reprimanded. Not a word of the facts was given to anybody until Commander Schley made his report to Secretary Chandler.

It is more than probable that, when all the details of the story are known, Dr. Octave Pavy, the surgeon of the expedition, will be found to have shared the same, or a very similar, fate to young Henry. The deaths of both men are entered under the same date on the ship's journal. Nothing is said about Henry's being shot. There is a blank left beneath the words "under the following order," and the names of the two men are written at the bottom of the page. The order, which was written on a separate piece of paper, had not been copied in the book. Dr. Pavy's body was one of the four swept away to sea. It is said that most of the men who went with the expedition were under arrest earlier in the winter for the same offence which cost poor Henry his life.

Having questioned a few of the officers on the three relief ships as they made fast to their moorings at the navy yard of New York, some of them asserted flatly that the bodies of the dead sailors were not at all mutilated when they were found, and scouted all idea of cannibalism. Others admitted that the bodies were shocking to look upon, but attributed it to the storm and the ice. The eating story they believed to be a sailor's yarn. The remains of the men were wrapped in cloths as soon as possible after they were dug up, and some of the party did not see them at all. Commander Schley declined to have anything to say about the state of the bodies any more than he gave to the public in his first official despatch.

"Did you see Henry's body?" he was asked.

"I did not."

"Of what did he die?"

"Starvation or scurvy, I believe, the same as the others."

"Do you know whether he was shot?"

"I am not prepared to answer that question," said the commander, hurriedly, "and, furthermore, I positively decline to be interviewed. When an official inquiry is made into the

details of the trip I shall say what I have to say, if anything, and not before." Without another word the commander hurried below.

The members of the crew were a little more communicative, but conflicting in their statements. Enough was said, however, to confirm some of the ugly stories afloat. At least a dozen of the men admitted that Henry was shot for stealing food.

On the first day of August at noon the relief squadron was seen off the harbor of Portsmouth, New Hampshire, which it entered at a little after five minutes to one, and came to anchor at a quarter past two o'clock. While passing through the Atlantic squadron all the men of war cheered in a most rousing style, and the scene was of an exhilarating and animating description. Crowds of ladies and gentlemen were on board of the flagship Tennessee and the Tallapoosa, and all were in the finest spirits. The lower bay was alive with small craft gayly dressed in the brightest bunting, and with a brilliant sky, water rivalling the blue Mediterranean, and a gentle breeze, nothing was wanting to make the scene perfect in color and form, an appropriate day for the reception of the Arctic survivors.

As soon as the relief ships came to their proper anchorage, their commanding officers came on board of the Tennessee, and were welcomed by all with fervent greetings, cheers by the men, and loud clapping of hands and a flutter of handkerchiefs on the part of the charming lady guests. Commander W. S. Schley, Charles S. Cotton, and Lieutenant W. S. Emory, as they descended from the side-ladder to the quarterdeck, looked like bronzed sailors who had cruised on the equator and among tropical islands. No one would dream from their aspect that the sun of the polar region had left its hand upon their healthy complexions. Their color suggested the ardent rays of the fiery tropics. They were evidently in excellent health, none the worse for their peculiar and dangerous experience amid bergs and ice-floes. Shortly after the arrival of the commanding officers the juniors came on board, and there was a delightful meeting among old messmates, relations, and friends. Many of the wives of the officers of the relief expedition were on board to meet their husbands, and the reunions were very touching. Mrs. Greely, her brother, and brother-in-law were sent to the Thetis, the

moment she anchored, in the captain's gig, and was the first to welcome her husband. Subsequently relatives of the survivors of the Greely expedition were permitted to visit their friends, but general visiting was prohibited. General Hazen, representing the Secretary of War, who was unable to join the ceremonies, also called on Lieutenant Greely and survivors and was visibly affected by the meeting, as were the gentlemen connected with the staff. She brought her two little girls with her from California, but sent the children to the hotel in Portsmouth to await their father there. One of them was born after Lieutenant Greely's departure, and he learned of its birth at St. John's. With Mrs. Greely were her two brothers, the Messrs. Nesmith, of San Diego, California. The Lieutenant's father and mother, who reside at Newburyport, were unable to be present on account of their advanced age. Mrs. Greely is a tall, slim lady, with sad eyes and a thin, wan face, which showed the anxiety she had suffered. She went to the admiral's cabin, where she took a glass of wine, and tried to get a little rest after the fatigue of seven long days of travelling, but she could not stay there while the fleet, which bore her husband and the bodies of his true companions, was coming in, so Secretary Chandler escorted her to the deck of the Tennessee, where she was given a chair and a field-glass, and was introduced to Mrs. Schley, the wife of her husband's rescuer. A cable was drawn across the deck to keep the crowd away from Mrs. Greely, and within there was a happy group.

The masts of the three Arctic ships were soon seen following those of the Alliance in close order, and as the latter came around the point on which old, dismantled Fort Constitution stands, the ladies surrounding Mrs. Greely gave way for the signal officer, who stepped out from under the awning and signalled to the Alliance the orders from Admiral Luce. Then the Thetis came in sight, and at a signal from the admiral all the sailors in the fleet clambered up the rigging, waved their caps, and gave a rousing cheer, while the band on the Tennessee brought the tears into Mrs. Greely's eyes by playing the old familiar air :

" Home again, home again,
From a foreign shore ;
And, oh it fills my soul with joy,
To meet my friends once more."

The signal officer directed the *Thetis* to her anchorage. She had scarcely dropped her anchors when the *Bear* came slowly steaming around the corner of old Fort Constitution, as black and solemn as a hearse in a funeral procession, and the sailors in the rigging cheered again. Then came the *Alert*, and a third cheer was heard, to which, however, there were no responses.

The flags on all the Arctic fleet, which had been at half-mast since the rescue at Cape Sabine, were raised to the mast-head by signalled orders from the Secretary of the Navy, who remarked that this was a day of joy and of welcome to the survivors, and not of mourning for the lost. When the Arctic fleet dropped their anchors Secretary Chandler offered his arm to Mrs. Greely and escorted her to the gang-plank, followed by her brothers. They were placed in charge of Commander Merry, of the *Tallapoosa*, who, in his launch, conveyed them to the *Thetis*. The secretary returned to his place on the deck, and as the launch passed by on her short voyage to the *Thetis*, the secretary exclaimed: "Ladies and gentlemen, let us give Mrs. Greely three good cheers!" Every man aboard the *Tennessee* caught the word and shouted at the top of his voice, while every woman waved her handkerchief. As the little launch passed the other vessels the same compliment was repeated, and pretty soon Mrs. Greely was seen climbing up the gangway of the *Thetis*, and was clasped in her husband's arms. The deck of the vessel was cleared, and the meeting was witnessed only by her two brothers.

In a few moments Commander Merry returned to the *Tennessee*, closely followed by a queer-looking black war-boat, as light as a balloon and as swift as a bird. It had an engine in its centre. It is the same launch that brought Lieutenant Greely and his surviving companions from their position of starvation in the ice at Cape Sabine. It steamed toward the *Tennessee*. As it neared the vessel voices cried out: "There's Schley!" "There's Bill Emory!" "There's Coffin!" Mrs. Schley and her pretty daughters left their chairs and Mrs. Coffin followed them to the admiral's cabin, escorted by Secretary Chandler and Admiral Luce. There was another hearty cheer as the little tug came up to the gangway, and the three commanders of the Arctic fleet were greeted by their old friends on board with a royal welcome.

As soon as they could shake themselves loose Commander Schley and Commander Coffin went to the cabin, and another scene of joy occurred, while the band played "Home Again" a second time.

Never before in the history of Portsmouth has there been so grand and imposing an event as the celebration of the return of Lieutenant Greely and the survivors of his expedition, which, under the auspices of the municipal government of Portsmouth, took place on the 4th day of August. If throngs of thousands of people, numerous bands of music, and boundless enthusiasm could make a celebration a success, this was successful. The day was perfect. On the crowded streets and through the squares there was everywhere order and cheerfulness. Throngs from all sections of the country came crowding into the city shortly after sunrise, and the thousands which were added by trains and incoming steamers were apparently lost in the immensity of the crowd already present.

At 8.30 A. M. boats, barges and steam-launches began to discharge heavy freights of officers and seamen from the North Atlantic Squadron and Arctic fleet along the crowded wharves. As fast as they arrived they were drawn up along the streets adjacent to Market Square. The civic organizations and military companies arrived from various points on early trains, having to take part in the celebration. All the public buildings and many private ones were handsomely and appropriately decorated, and "Welcome to Our Arctic Heroes" was imprinted everywhere on flying bunting. At 10 o'clock the steam-tug Leyden landed the last of the sailors from the fleet, and the naval column was formed for the march on David and State streets, and moved to an appropriate place.

From an early hour in the morning crowds blocked up the streets near where Greely was to land. The coming of the Arctic hero was the all-absorbing object of interest. Every steam-launch was scanned and every barge anxiously watched for his presence. At 11.20 o'clock, amid considerable enthusiasm, Commander Schley, Lieutenant Emory and Commander Coffin disembarked from a barge. Following them were the other officers of the Greely relief expedition. All were attired in neat uniforms. Then were landed the sailors of the Thetis, Bear and Alert, wearing heavy stoga boots with pants tucked in the tops, dark blue shirts and regulation

navy caps. They rolled along with a sailor gait. All were bronzed, sunburned and weather-beaten. They were enthusiastically greeted as they landed, and the crowd pressed forward to shake their hands. Five sailors from the squadron greeted their companions from the relief ships with a hearty "messmate, welcome home," and other honest greetings. Not a few tears were shed at affecting meetings between old messmates.

A roar of welcome went up when, at 11 o'clock, Greely was discovered with his comrades coming towards the landing in the admiral's barge. Greely was clothed in white, with a slouched hat, and wearing spectacles. As he and his companions alighted all crowded to welcome him. Greely leaned upon the arm of Lieutenant Powell, and languidly lifted his hat. His every movement indicated weakness. His comrades received much attention, and were objects of curious scrutiny. All were placed in coaches and immediately driven to the Rockingham House, it having been decided that they should not appear in the procession. At the hotel crowds gathered to catch a glimpse of them. Lieutenant Greely said to the Associated Press representative that he felt very well that morning, and he looked it. He expressed himself as being much moved by the cordiality of his reception. Mrs. Greely joined her husband at the hotel. Meanwhile the arrangements for starting the procession were completed.

Upon two large stands in Market Square were gathered many prominent persons and a number of ladies.

At 11.20 the procession began to move along the packed streets. Thunderous applause greeted the sailors of the relief squadron as they moved along, the crew of the Thetis leading, with that of the Bear and then the men from the Alert. The ovation continued through the entire route of the procession.

Commander Schley, Lieutenant Emory and Commander Coffin were received with tremendous applause as they passed along in an open carriage. They smilingly acknowledged the tribute of the crowd by lifting their hats. After them rode the other officers of the relief squadron, and they, too, received a hearty ovation. After them rode in an open carriage Secretary Chandler, General Hazen, Commodore Wells and Acting Admiral Luce. These gentlemen also received a tribute of applause. The marching of the long

procession was very fine, and the manœuvres of the battalion of marines from the squadron were brilliant. As the head of the procession neared the Rockingham House, where Lieutenant Greely and the survivors of the party were waiting to review the procession, the pressure of the crowd became so great that the advance of the column was delayed several minutes.

Lieutenant Greely and his comrades were seated upon a balcony, and when the head of the procession appeared cheer after cheer greeted him. The men in the procession joined. As the crews of the *Thetis*, *Bear* and *Alert* passed, Lieutenant Greely bowed very low and seemed to look his gratitude to the men who had so recently rescued him from an Arctic grave. The scene was affecting, and much emotion seemed to pervade the entire throng, and many brushed tears from their eyes. The relief crews respectfully raised their caps. Lieutenant Greely was kept busy bowing his acknowledgments as the long procession passed. Commanders Schley and Coffin and Lieutenant Emory raised their hats as they passed the hero. After the procession had passed, Lieutenant Greely and his party entered the hotel and remained a short time. They were then driven to the grand stand, where they again reviewed the procession and received the plaudits of the multitude.

Among the prominent men on the stand were Secretary Chandler, General Hazen, Governor Hale, Mayor Lathrop, of Dover; the Mayor of Newburyport, Mayor Putnam, of Manchester; Samuel J. Randall; Congressman Robinson, of New York; officers of the relief expedition and North Atlantic Squadron, and members of the city governments of many New England cities. Shortly after 2 o'clock the invited guests proceeded to the Rockingham House, where they were entertained at dinner by the city of Portsmouth.

The meeting of citizens at Music Hall in the evening, to extend the official welcome of the city of Portsmouth to Lieutenant Greely and the remainder of his crew, was largely attended, and was characterized by unbounded enthusiasm. In the auditorium there was a representation of Portsmouth's foremost citizens, while upon the stage sat many distinguished gentlemen. Among those on the stage were the officers of the North Atlantic Squadron and Arctic relief fleet. In the front seats in the orchestra sat the crews of the *Thetis*, *Bear*

and Alert. These sturdy sailors were enthusiastically received by the audience when they entered, as were their officers when they shortly afterwards took seats on the stage. Among others on the stage were W. E. Chandler, Secretary of the Navy; General Hazen, Chief Signal Officer; Admiral Luce, Commodore Welles, General B. F. Butler, ex-Speaker Randall, Congressman Robinson, of New York; Governor Hale, of New Hampshire; Senator Hale, of Maine, and many others.

Remarks were made by Rev. W. A. McGinley, Rev. H. E. Hovey, ex-Speaker Randall, Commander Schley, Lieutenant Emory and others. The meeting closed with prayer by Rev. J. A. Gross.

In the presence of a large concourse, and with the attendance of Secretary of War Lincoln, Lieutenant-General P. H. Sheridan, Commander-in-Chief; Major-General W. S. Hancock, Commanding the Division of the Atlantic; Commodore Fillebrown, United States Navy, and many other distinguished officers of both services, the remains of Lieutenant Greely's companions, who died in the Arctic regions, received on August 8th at New York impressive melancholy honors due to military merit.

The foggy weather which had detained the returning relief ships near Wood's Holl, Rhode Island, having cleared off, the vessels were able to creep up the coast so as to be within sight of Sandy Hook early on the 7th.

Early in the day the batteries of the Fourth and Fifth United States artillery, to the number of about four hundred men, were drawn up in line at half-past nine o'clock on the government wharf on Governor's Island, facing south, the band on the left of the line, near the point of disembarkation. The troops were commanded by Major R. J. Jackson. Drums were muffled, the officers and men wore the regulation insignia of mourning, and flags drooped at half-mast on the government ships and buildings and on American vessels in the harbor. It was remarkable that, with the exception of a large French steamer lying at anchor in front of the Battery, few of the foreign ships in sight showed any half-mast signals of mourning.

After the men had been under arms some time General Hancock, accompanied by his staff, went to the landing, where he received Secretary of War Lincoln and Lieutenant-General

eral Sheridan, who arrived on the island at half-past ten o'clock. They had been escorted from the battery by Colonel Hodges, Captain Pond and Lieutenant Riley, who were detailed for that duty by General Hancock. The secretary and his party crossed over to the island on the United States steam-launch Ordnance. General Sheridan wore the uniform of his rank. Among the members of his personal staff were Colonel M. V. Sheridan (the general's brother), Colonel Gregory and Colonel Volckman. Accompanying Major-General Hancock were Captain John S. Wharton, Nineteenth Infantry; Captain G. S. L. Ward, Twenty-second Infantry, and First Lieutenant Thomas H. Barber, all belonging to his personal staff. Of the division staff there were with the general Lieutenant-Colonel William D. Whipple, Assistant Adjutant-General; Lieutenant-Colonel Roger Jones, Assistant Inspector-General; Colonel H. F. Clarke, Assistant Commissary-General; Colonel Charles Sutherland, Medical Director; Colonel Daniel McClure, Assistant Paymaster-General and Colonel A. J. Perry, Assistant Quartermaster-General.

When Secretary Lincoln and General Sheridan stepped ashore they were greeted by General Hancock, who offered them the salutes due to their respective ranks. Both the Secretary and Lieutenant-General declined these honors.

Precisely at ten minutes to eleven o'clock the black hulls of the three Arctic ships were seen from Fort Columbus, between Governor's Island and the quarantine station. They approached with a slow, solemn motion, Commander Schley's vessel, the *Thetis*, leading the van. The *Bear*, with Lieutenant Emory in charge, came next, and the *Alert*, under Lieutenant Coffin, brought up the rear. Slowly and majestically they steamed past Fort Columbus, and then, heading down the bay, stopped in mid channel between Bedloe's Island and the fort, their prows turned toward the latter, where anchors were let go and steam blown off.

The ships had at length arrived at their destination and brought their adventurous voyage to a close in the same port from which they had gone forth to battle with the rigors of the frozen North. As soon as they got into line with Fort Columbus its guns thundered a national salute in honor of the returned adventurers and of the brave men who laid down their lives without a murmur at the call of duty.

No sooner had the three black hulls been recognized than

General Hancock sent off his aide-de-camp, Lieutenant Thomas H. Barber, in a steam-launch to greet the returned explorers in his name, and to offer such assistance as they might need. The aide-de-camp had orders to remain with Commander Schley and to accompany the bodies ashore. At the same time the steamtug Catalpa shot out into mid-stream from the direction of the Brooklyn bridge. She was closely followed by Commodore Fillebrown's barge and the steam-launches Despatch, Minnesota and Ordnance. These craft waited for the bodies to be placed on the Catalpa, in order to form her escort to the landing-place at Governor's Island.

The hulls of the three relief ships showed but little signs of severe usage in the Arctic Ocean, and were it not for the presence of some strange-looking dogs and sledges on board the Bear it would never be suspected that she had returned from a voyage to frozen seas.

When the echo of the saluting guns had died away, there was an interval of more than an hour before the bodies were removed to the Catalpa. As soon as this was effected minute guns were discharged until after the caskets had been deposited in the hospital ward. During the wait the troops were allowed to march back to quarters, where rations were served. The first minute gun was the signal for their reassembling and again forming on the landing. The mounted men of Light Battery B were already formed on horseback, with gun caissons, awaiting but the signal to move by the flank of the escort, carrying the remains to their temporary resting-place.

From nine o'clock in the morning the little steamer Thomas Riley kept bringing over large numbers of people to the island. Some of them were connections of the deceased, others belonged to the military or civil service and still more were sightseers. The latter explored the island thoroughly. They swarmed on the grassy glacis of the fort, perched upon the parapets and crowded the covered way. No part of the fortifications was sacred to the visitors. They crowded to suffocation the hospital ward the moment the bodies were deposited there.

It was twenty minutes to one o'clock before the Catalpa and her escort steamed up to the dock where the troops were drawn up. As soon as the tug was made fast Commander Schley, Commander Coffin, Lieutenant Sebree, Lieutenant

Crosby and other officers of the relief ships stepped on shore. They were at once introduced by Lieutenant Barber to General Hancock, who received them in the most cordial manner. He immediately presented them to Secretary Lincoln and to General Sheridan, who also received them very warmly. At that moment Commodore Fillebrown disembarked from his barge.

A detail of eight men and a sergeant was told off to carry the caskets from the tug, along the front of the escort, to the caissons. Each casket was constructed of boiler iron, firmly riveted and hermetically sealed. They were all painted black, having a silver plate on the lid, with an inscription showing the age of each man and the date of his death. The caskets were covered with the American ensign; the national shield on that of Lieutenant Lockwood only. As each casket was borne on a stretcher along the front of the escort the troops presented arms, the officers saluted, colors were drooped and the band played a dirge. An affecting scene was witnessed while the body of Lieutenant Fred Kislingbury was passing. His brothers, John G. and William H., and his son, Walter Kislingbury, a lad of fifteen years, wept bitterly. The heart of General Hancock was moved at the sight. He took the orphan's hand and spoke encouragingly to the boy.

At five minutes after one o'clock the procession took up its line of march in the following order:

Line of eleven gun caissons, each one drawn by two horses, each caisson carrying one of the bodies. The escort, under command of Major Jackson, with arms reversed, officers and men wearing crape on the left arms and on the sword hilts, marching in slow time, the band playing the dead march. The Secretary of War, Generals Sheridan and Hancock, the staffs of these two officers, several other distinguished generals and the friends and relatives of the deceased.

Upon arriving at the hospital the caskets were at once unstrapped from the caissons, carried into the mourning ward that had been prepared for them, and there deposited upon the trestles, where they were to rest until sent to their final destinations. Guards of honor were stationed in the ward, the rest of the troops silently retired to their quarters, the curiosity seekers began to thin out, and at three o'clock the island was deserted by its visitors, and the brave dead were left in the sentinel's care to sleep on in their glory.

CHAPTER XXVIII.

TERRIBLE STORY OF CANNIBALISM.

How the Bodies of the Victims were interred—Proofs of Cannibalism—The Flesh of Lieutenant Kislingbury's Body cut off with Knives—The Carte-de-visite of a Surgeon—The Greely Survivors—Their Physical Condition when Rescued—Surgeon Green's Report—What Lieutenant Greely says concerning Cannibalism—Lieutenant Greely on Disensions in the Camp—Dr. Pavy takes his own Life—The Body washed away—A Story full of Horror—The first Taste of Human Flesh—Private Henry Welcome Food.

THE question whether the starving men of the Greely Expedition resorted to cannibalism to stay the gnawing pangs of hunger and prolong their lives has at last been answered. The body of Lieutenant Kislingbury was exhumed on the 14th day of August at Rochester, N. Y., and it was found that the flesh had been cut from the body, and that only the skeleton remained.

The result of the examination is given in the following affidavit, which was made immediately upon the return of the party to the city:

"From the upper portion of the sternum and clavicle to the lower border of the fifth rib on the left side the skin and muscles had all been removed down to the ribs on the right side. The skin and muscles down to the lower border of the last rib were gone. There were two openings between the fourth and fifth intercostal spaces into the thoracic cavity. The skin and muscles on the anterior portion of the abdomen were intact to the crest of the ilium or pelvic bones; muscles and skin of anterior and posterior of the thighs were entirely removed except the skin on the anterior portion of the knee joints; muscles and skin of left leg removed to within three inches of ankle joint; on right leg skin and muscles removed to within five inches of ankle joint.

"Both feet were intact and the toes all present. There was no vestige of integument or muscles on either arm, including the muscles of the shoulder-blades to wrist joints, except on

the right forearm, the interosseous membrane remaining. Flesh and muscles on both hands intact.

"The examination of the posterior portion of the body showed that the skin and muscles of the back from the seventh cervical vertebra had been dissected or cut completely away down to the bones, with the exception of pieces of skin from two to three inches square on each side of the upper portion of the sacrum. The pelvic bones were completely denuded. All the extremities were attached to the body by ligaments only. No fractures of the body were discovered. We found all the organs of the thorax and abdomen present. There was evidence of recent inflammation of the stomach and bowels. The large intestines were distended with hardened lumps of fecal matter, in which there was hair, moss or woody fibre.

"In our opinion the flesh removed was cut away with some sharp instrument. That remaining on the feet, hands and face showed no signs of decomposition.

[Signed]

"CHARLES BUCKLEY, M. D.

"F. A. MANDEVILLE, M. D.

"Subscribed and sworn to before me this 14th day of August, 1884.

"EDWARD ANGEVINE,

"Commissioner of Deeds."

The work of opening the heavy iron receptacle was found to be comparatively easy, all there was to do being to unscrew the fifty-two iron bolts which held down the lid. The noiseless ease with which the latter was pried from its bed showed that there was an absence of gas, and it was feared that there might be no body in the casket at all. Between the cover and the contents of the coffin there was some rubber packing saturated with white lead, and white lead also surrounded the bolts and joints. Feeling his way into the mass of snowy cotton waste which filled the coffin to the top, Mr. Jeffries soon exclaimed: "He is there." A strong odor of alcohol, but no very pronounced suggestion of decay, emanated from the casket. Dr. Buckley uncovered the lower portion of the coffin's tenant, and then it appeared as if one of the legs—the right one—was missing, but when the waste was all removed it became apparent that the limb was tied under the left one.

The casket was next placed upon the floor, and the unshrouded form taken from it and placed upon the table. On the bottom of the coffin were noticed two large spots of blood, but they were pronounced of common occurrence at burials. The sheet was taken away and the tarred rope which entwined the blanket cut, and the work of taking off this last covering began. Slowly and reverentially the blanket was removed, and then there was a suppressed cry of horror upon the lips of those present. The half-body, half-skeleton remains lay outstretched in all their ghastly terror. The blackened, fleshless face, bearing marks of Arctic toil, had no resemblance to the dead man. The head was covered with long, matted, dark-brown hair and a lighter-colored moustache cleaved to the upper lip, while a wool-like beard of the same color surrounded the lower portion of the countenance. The skin was dried to the skull. The sightless sockets, the half-opened mouth, gave the dead man a look of mute, appealing agony.

"That tells the whole story," moaned one of the brothers, gazing with a strange fascination on the awful scene.

The skeleton was shrunken. There was little, if any, flesh on the arms and legs, and the body from the throat down was denuded of its skin. The feet were incased in bluish woollen socks and were emaciated, but almost intact. Upon the right side of the breast, between the ribs, appeared two gaping wounds, which did not fail to inspire those present with a suspicion that poor Kislingbury might have been foully dealt with. The doctors examined the mouth, and John Kislingbury, watching their movements, soon directed the attention of his brother to evidence which established the identity of the body, saying: "That is he, Frank; see, his tooth is gone!" A plate containing several false teeth was in the mouth. Further proof was furnished by marks on the right toe, which had been injured, while the lieutenant was guarding rebel prisoners at Elmira, by a horse stepping upon his foot. For some time he expected he would have to have the toe amputated, but it finally was saved. When the doctors touched the moustache of the dead man it came off partially. The nose was found, as described by officers of the relief expedition, partly missing. When the remains were turned over on one side, the skinless back and bare shoulder blades presented the same sickening spectacle as the front.

The physicians did not find any evidence of violence, and placed the body in its original position. Then the brothers were informed that the stomach and other internal organs were all present, and they were asked whether they desired the same to be opened in order to complete the examination and establish the cause of death. They answered that nothing should be left undone which could furnish proof upon that point. It was found that the intestines adhered to the sides of the abdomen, proving that there had been recent inflammation of the stomach and bowels. From the large intestine a ball of dark hair-like substance was taken, showing that the last thing eaten by deceased in his starving condition was probably portions of clothing or sealskin strips. As it had been reported by the survivors that Lieutenant Kislingbury had last fall sustained a rupture by falling off an iceberg, an examination was made of the lower portion of the body, but no evidence whatever was found that anything of the kind had occurred. No internal evidence of any wounds was found, and the conclusion reached was that the openings between the ribs on the right side of the breast were caused by the knives of those who stripped the body of its flesh and skin to still the terrible cravings of long-aggravated hunger. Lieutenant Kislingbury had died of starvation and disease, and his comrades had eaten his body, like those of others who had died before and after him. The examination was concluded at 8.45, and the remains were again placed in the casket and reinterred. Subsequently the physicians in attendance made and subscribed to the above sworn statement in accordance with the facts.

When the body of Private William Whistler, of the Greely Arctic Expedition, was interred at the Rockfield Cemetery, two miles east of Delhi, Ind., there was no suspicion of cannibalism. The body was consigned to the grave with due honor, and with the pomp of military display. The relatives of young Whistler are simple country folk, and have little access to the daily newspapers. Christian Whistler, the father of the dead explorer, gave no heed to the printed tales of cannibalism, but the aged William Whistler, the grandfather of the deceased man, as soon as he read the story resolved to have the body exhumed and to see for himself what there might be in the rumors. It was decided by him to exhume the body on Sunday, but arrangements to that effect could



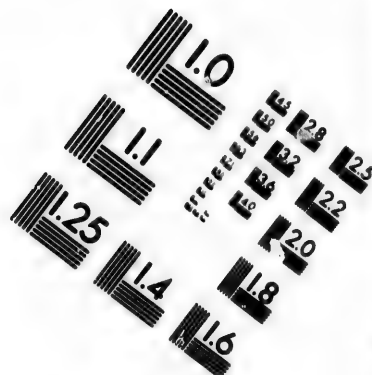
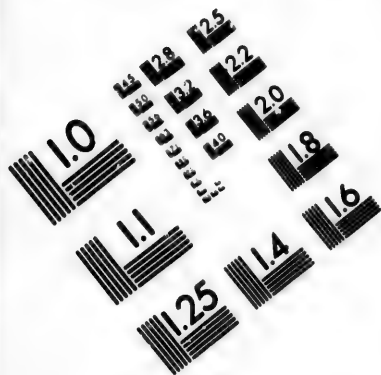
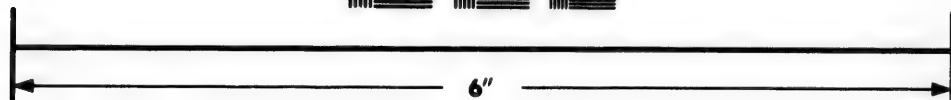
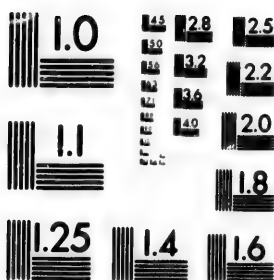
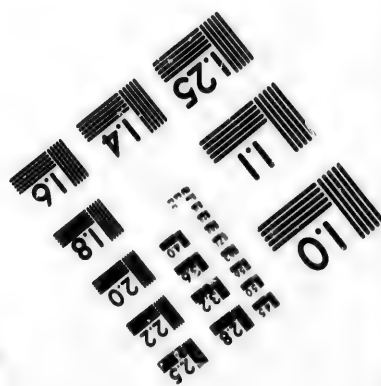


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not be completed. It was the intention of the grandfather to have the exhumation strictly quiet, and, as the newspapers had said that the body would be disinterred on Sunday, he postponed it until this morning.

So quietly was the affair conducted that farmers within a half-mile knew nothing of it. Six men opened the grave at 6.20 A. M., and at 7.15 the casket was carried from the grave to beneath the shade of a tree in the cemetery. The body lay in what is known as the Whistler Graveyard. This cemetery is a veritable country churchyard. There are but twelve graves in it. Fourteen persons besides the laborers who opened the grave were present. They were Dr. Charles E. Angell, Dr. E. W. H. Beck, W. F. Sharer, W. Smith, D. A. Fassett, L. G. Beck, Mr. and Mrs. Jefferson Deil, William Whistler and wife, Christian Whistler, and representatives of the press.

It took only ten minutes to loosen the fifty-two bolts and raise the lid of the casket. The body was wrapped in cotton waste, around which was a hemp cord. Displacing these, a blanket was found next to the body. When this blanket was removed the ghastly sight of a mere skeleton was seen, there was nothing of the body left, save the head and trunk. All the flesh had been cut from the limbs. The arms, legs, and shoulders were bare bones.

Strips of flesh had also been taken from the breast. The left foot, which had been frozen, was not touched, and the left hand was unharmed. The face was sunken, but not unlike the ordinary corpse, and the red hair and short beard made it easy for Whistler's friends to identify him. It was particularly noticeable that the bones were picked entirely clean; not a vestige of flesh is left on them. The back has nothing on it. In fact, the only things left of the man are his head, breast, intestines, and the left hand and left foot.

The appearance would show that an expert had done the cutting of the flesh. A thorough examination by the physicians showed that the stomach was entirely empty. The head and neck were unharmed by blows. The head was incased in a knitted cape, over which was a sealskin. The skeleton hands wore mits—a mitten covering half the hand. When the coffin was opened there was a strong odor of alcohol, but no further very bad stench.

The physicians made no report, and will not unless asked

by the government officials. They say that they can report merely a fleshless man picked as clean as if his bones were to be varnished. The aged grandparents took a look at the body for a minute only before it was again fastened in the casket. They said that the face was easily recognizable, and as to the horrible condition of the body they had but little to say.

"Poor boy," said the old lady, "he was a good lad, but it is better that he has been eaten by his comrades than that he should have eaten of them."

Whistler died on May 24th. He was twenty-seven years of age.

The bodies of Privates Charles B. Henry and Roderick Schneider were conveyed from Governor's Island and buried in Cypress Hills Cemetery with appropriate honors. The services, which were held in the chapel on the island, were conducted by Post-Chaplain E. H. C. Goodwin, and attended by General Hancock, his staff, and the companions-in-arms of the deceased. On the coffins Union Jacks were folded, and when the services were over, the bodies were placed upon caissons and escorted to the steamboat Chester A. Arthur, on which they were taken to Brooklyn. General Hancock and staff followed in steam-launches, and the soldiers were transported on a barge.

The cortege landed at the foot of Atlantic street. A large crowd awaited its arrival for over two hours.

The bodies were removed by eight soldiers, and the escort set out for the cemetery in the following order:

Brooklyn Police Squad; Mounted Battery F, Fifth Artillery; Band of the Fifth Regiment of Artillery; four Foot Batteries; carriage containing the Rev. Mr. Goodwin and Medical Director Janeway; the caskets containing the bodies of Privates Schneider and Henry, on artillery caissons, flanked by pall-bearers on foot; carriages containing Generals Hancock and Ferry, Adjutant-General Whipple, and staff and regimental field officers.

The route of procession was lined with people, and the flags were displayed at half-mast on the City Hall, Municipal Building, Court House and many private buildings.

On reaching Cypress Hills the body of Private Henry was borne to a grave in the soldiers' plot. The remains of Private Schneider were placed in the receiving vault, where they

remained until the arrival of his relatives from Germany. It is alleged that both bodies were eaten by the survivors, but the proof could not be established for the above reasons.

The remains of Sergeant William H. Cross, of the Greely Expedition, were conveyed to Washington, D. C., where the interment took place. A committee composed of William J. Ferguson, William C. Peake, John Jost, John Minnis, and A. Laufman, representing Franklin Lodge, No. 2, Knights of Pythias, received the remains at the Adams Express depot, Sixth street and Virginia avenue, Southwest, and escorted them to Odd Fellows' Hall, Navy Yard. The body was encased in a strong black casket, made of boiler-iron, securely riveted, in which it was placed at Governor's Island. This casket, with its contents, weighed seven hundred pounds. The lid was bolted on with fifty-six screw bolts, which would have discouraged any attempts to open the casket, even if it were deemed advisable to open it. The Knights of Pythias committee received a telegram from the Post Quartermaster at Governor's Island telling them not to open the casket under any circumstances. It was intended to have exposed the remains to view, but it is supposed that they were not in good condition to be exposed. The committee of Knights of Pythias served as a guard of honor. An American flag partially covered the lower part of the casket. Near the head was a silver plate inscribed as follows:

WILLIAM H. CROSS,
Sergeant United States Army.
Died January 18th, 1884.
Aged thirty-nine years.

"It has always been published," said one of the committee, "that he died on the 1st of January; but this inscription is correct. He died on the 18th. He was the first man to succumb to the hardships of the expedition."

The remains of Sergeant Joseph Ellison were brought to Pottsville, Pa., for interment. A deputation of the Gowen Post, together with a large concourse of people, were at the depot to receive them. The remains were enclosed in an iron casket, heavily riveted, and could not be opened, so that a last inspection of the familiar features of the martyr of the ice was prohibited. The remains were immediately taken to

the residence of Alois Elison, a brother of the deceased, at Yorkville, where a catafalque had been erected, and where all that is mortal of the young hero laid in state, guarded by a guard of honor from the Post. The funeral procession was formed in the following order:

Pottsville Police Force; West End Band; St. Bernard's Society; St. John the Baptist Society; St. John's Society; Washington Beneficial Society; German Mechanics; all other civic societies; court and bar officers; fire department; Third Brigade Band; Company H, Eighth Regiment; Company K, Eighth Regiment; Company F, Fourth Regiment; Yorkville Band; visiting Posts G. A. R. of Shenandoah, St. Clair, Minersville, Port Carbon and Schuylkill Haven; Gowen Post, No. 23, G. A. R., Guard of Honor; hearse; relatives and friends.

The interment took place at the German Catholic Cemetery, of which church the deceased was a member.

Joseph Elison was born on January 27th, 1849, at Baden, Germany, and to avoid being drafted into the army he left his fatherland, arriving in America on the 29th of February, 1868. In a letter to his brother Alois, dated six miles north of Lady Franklin Bay, July 6th, 1881, he says: "I am in good health and spirits, and leave the United States with the full assurance that I shall see its shores again." After asking his friends to think kindly of him, he concludes by saying: "I will surely think of you in my cold abode. Surrounded by snow and ice, my heart shall beat warm for you even should the thermometer register 80 degrees below zero."

The obsequies of Lieutenant James B. Lockwood, United States Army, were observed at Annapolis, Maryland, with all the ceremonies possible during the vacation of the Naval Academy. Everyone united in paying honor to the distinguished dead, whose exploit in reaching the highest latitude the foot of man ever trod, had added another name to the roll of illustrious Annapolitans, whose fame is historic. The remains of Lieutenant Lockwood were transferred, during the services, from the chapel of St. Anne's to the church. At two o'clock the church began to fill rapidly. The officers, professors, and cadets then at the Naval Academy were present, together with a large congregation of leading citizens. The pall-bearers were met at the door by the rector, Rev. Mr. S. Southgate, who read the services for the dead as they

proceeded down the main aisle. Halting at the chancel, the pall-bearers deposited the remains on the altar and the services were continued.

The pall-bearers were Lieutenant Peck, W. D. Orme, S. W. Rittenhouse, W. Atkinson, Ensign R. B. Dashiell, and Nevett Steele. The coffin was beautifully decorated with flowers, in the centre a crown and the rest covered with crosses. Lieutenant Lockwood's father, mother, and three sisters and Admiral Balch were present.

After service was concluded at the church the corpse was removed to the hearse, and the procession formed and proceeded down College avenue to the Naval Cemetery, the bell of St. Anne's tolling a solemn dirge as the cortège moved away in the following order:

Music; firing party; chaplain; pall-bearers; hearse; pall-bearers; body-bearers; sailors, bearing national colors draped; cadets; officers and professors; the governor's guards; carriages; civilians.

On arriving at the Naval Cemetery the remains were deposited in a grave between those of Commander Edward Terry and Lieutenant Collins, of the United States Navy, the site of which is a high, woody bluff that overlooks the birth-place and alma mater of the young hero. The religious rites ended, the firing party gave the martial spirit a soldier's last farewell, and Lieutenant Lockwood was left to sleep till the final reveille.

Sergeant Edward Israel was buried at his home, Kalamazoo, Michigan. He was the youngest man in the expedition, being only twenty-three years of age, and the only Hebrew in it. His friends came on to receive the body.

Sergeant David Ralston was sent to Howard, Knox county, Ohio.

Sergeant David Linn was buried in Philadelphia.

Private William A. Ellis' remains were taken charge of by his mother for interment at Clyde, New York.

In the official report of Edward H. Green, M. D., surgeon of the steamship Thetis, of the Greely relief squadron, on the condition of the survivors of the Greely party when found at their camp on Smith's Sound, and their subsequent treatment, and as a preliminary to the medical history of the cases of the wretched survivors of the expedition, the surgeon gives a résumé of their mode of life at Camp Clay, in order that the

reader may better appreciate the condition in which they were found.

On September 29th, 1883, Lieutenant Greely landed with his party at Baird Inlet after thirty days' exposure drifting on an ice-floe; the record left at that time stated the party were all well. On October 25th, they moved around to a point between Cape Sabine and Cocked Hat Island. A glacier was situated at the foot of the mountains on either side of them, about a mile distant. They constructed a house of loose rock and moss, the walls being three feet in thickness. The roofing consisted of old canvas stretched over a boat; the dimensions of the house were 25 feet long by 17 feet wide by 4 feet high, making a cubic air-space of 1,700 feet; in this the twenty-five members of the party lived all winter, having a cubic air allowance of about seventy feet for each man. The whole party could barely squeeze in and lie at length, two or three being obliged to occupy the same sleeping-bag; the effect of this diminished air-space will be seen later on. Their hut was but 100 yards removed from the ice-foot of the sound, and 200 yards to the south of them was an artificial lake, from which they drew their water supply by melting up ice; as the sea-water strained into this lake, they were drinking brackish water all the while.

On November 1st, 1883, Lieutenant Greely took a careful account of his stock of provisions, and found there was but a whole ration for each man (estimating as an army ration, about forty-six ounces of solid food per diem) for forty days. Dr. Pavy and he advised together, and it was with some reluctance that they determined to divide up the rations so as to make them last until March 1st, putting aside from time to time, so that at the end they would still have ten days' supplies left with which to attempt the trip to Littleton Island, if the straits were frozen over. Dr. Pavy did not think the party could exist on the ration during the winter, but the common voice was to make it go as far as it would; so each man was given the following daily allowance:

Meat and blubber.....	4.33	ounces.
Bread and dog biscuit.....	6.5	"
Canned vegetables and rice.....	1.4	"
Butter and lard.....	0.75	"
Soup and beef extract.....	0.90	"
Berries, pickles, raisins, and milk.....	1.	"

The daily allowance for the four months was 14.88 ounces. During the winter the following amount of game was secured, which added to their stores: two seals, yielding about 120 pounds of meat, one bear, yielding 300 pounds of meat, eight foxes, four pounds each, and sixty dovekies (*uria brunnichii*), a small bird, weighing about a pound.

March 1st found the party intact, with the exception of Sergeant Cross, who died in January with well-marked scorbutic symptoms—the only case of pronounced scurvy that developed—and Hans, their Esquimau hunter, who was lost in his boat while hunting seals, early in February. The rest of the stores having been exhausted, the remaining supplies were divided up so as to last until May 12th.

After the last reduction the party began rapidly to weaken and die. About the 24th of March the whole party was overcome with asphyxia, and nearly lost their lives, owing to the atmosphere being surcharged with carbonic acid. They had lit their alcohol stove in the hut to cook a meal, without previously having removed the rags from the vent-hole in the roof; the remaining oxygen of the air was soon consumed by the stove, and the whole party were seized with faintness, vertigo, and dyspnoea. It was with the greatest difficulty they struggled from their sleeping-bags, and stumbled and were helped into the open air, many fainting away and dropping unconscious after reaching the opening. Being poorly clad for a temperature such as prevailed outside at the time (-46° F.), many were frostbitten. The after effects of this mishap remained for a long time, and weakened many of them.

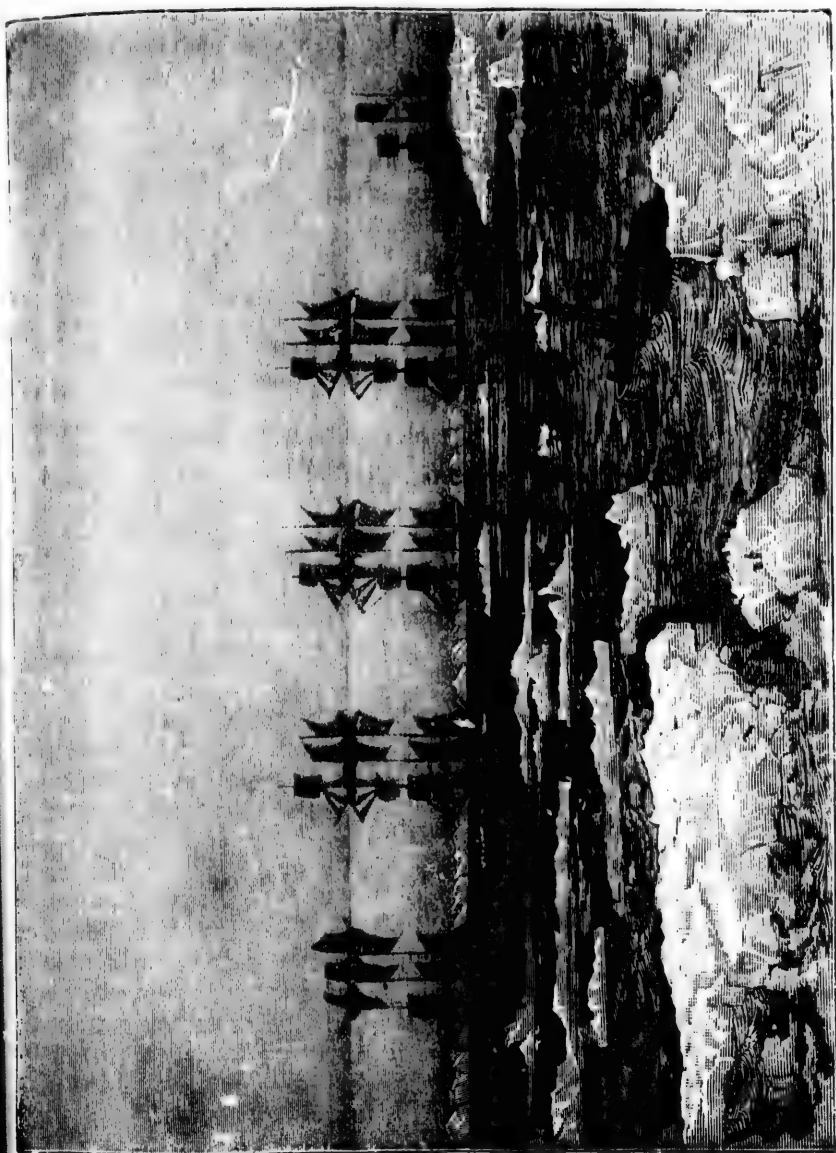
After May 12th everything like a regular ration was exhausted, and they struggled on as best they could, catching the shrimps (which they boiled); gathering reindeer moss, which, when boiled, yields a mucilage similar to Iceland moss, and boiling up the sealskin linings of their sleeping-bags, from which a gelatinous mass was extracted. They had no fuel for artificial warmth, and barely sufficient to allow for melting the ice for procuring drinking water and to cook a meal every other day; so that the living temperature of the hut for the winter was from 5° to 10° Fahr. They recognized the fact that the nearer they could approach a state of hibernating, the better were their chances of getting through. Only those employed as cooks and hunters exerted them-

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THE EFFECT OF THE MIRAGE, AS SEEN IN THE ARCTIC REGIONS.

selves much, and they were given a double ration. The rest occupied their sleeping-bags, and slept sixteen to eighteen hours out of the twenty-four. In answer to complaints of hunger Dr. Pavy's motto was, "Qui dort, dine," which was philosophical without being filling.

There seemed to be but little acute suffering from the lack of food. It was only after the introduction of food into the stomach that the craving became great. For days they went without food without actual suffering. The deaths seemed to take place finally from heart trouble (hydrops pericardii). The feet and face became œdematous; for a day or so they would complain of pain over the heart; have a spasm of pain over the præcordia; a slight general convulsion, and all would be over. Their chief suffering during the winter was from constipation.

There were but seven out of the twenty-five found alive. These were A. W. Greely, First Lieutenant, U. S. A.; Henry Biederbeck, Hospital Steward; D. Brainard, Sergeant, U. S. A.; Morris Connell, Private, U. S. A.; Joseph Elison, Sergeant, U. S. A.; Julius Fredericks, Sergeant, U. S. A.; Francis Long, Sergeant, U. S. A. The first four mentioned were taken on board the flagship Thetis and placed under my care, and with them this paper will principally be concerned.

June 22d, 11 P. M., A. W. Greely, Lieutenant, U. S. A., at 40. Disease, asthenia. On admission he fainted after being carried below in the wardroom, and vomited; administered ammoniæ spts. aromat. 6 c. c. (100 minims), renewed in ten minutes; placed him in a berth, gave a teaspoonful of raw, fresh beef, minced; clothes were carefully cut off of him and heavy red flannels, previously warmed, substituted. His body emitted a sickly, offensive odor; emaciated to a degree. The skin hanging from his limbs in flaps; face, hands and scalp blackened with a thick crust of soot and dirt (having not washed or changed his clothing for ten months).

In an interview at Portsmouth Lieutenant Greely said, as to the reports of divisions in the expedition: "In regard to the story of two factions, with Lieutenant Kislingbury in charge of the opposition, I will say that that rumor is totally false, having no foundation whatever. The trouble between Kislingbury and myself occurred in 1881, the first year of the expedition. He desired to be relieved from duty and I not

wishing to retain a man against his will, although I had the power to do so, gave him his liberty. It is my impression that he desired to return to the United States. He went southward, but the *Proteus* was sunk and he returned to duty. I treated him as though nothing had happened and recently, when Lockwood died, I gave Kislingbury the second place in the expedition."

"What do you say about the condition of Kislingbury's body?" asked the reporter.

"I say that it is news, and horrible news, to me. All these later disclosures and terrible charges come upon me with awful suddenness. I can truthfully say that I have suffered more mental anguish these last few days than I did in all my sojourn in the North, when the chances were a hundred to one against me. I can but repeat that if there was any cannibalism, and there now seems to be no doubt about it, the man-eating was done in secrecy and entirely without my knowledge and contrary to my discipline. I can give no stronger denial. I have demanded an investigation and it will come in time, but I can say nothing more than I have already stated. All my papers and Kislingbury's diary, Lockwood's diary, and, in fact, every scrap of paper relating to the expedition are in charge of the War Department at Washington. The crew of the *Thetis* can testify that the body of the last man dead, Schneider, was not mutilated in any way, and the fact that we kept Elison alive in the hopeless state we were in ought to convince anybody that we are not cannibals. Since my return from Newburyport every one of my men has called upon me. They came in a body, and assured me emphatically that they knew nothing about the condition of the bodies of their fallen comrades, and each solemnly swore that he was innocent. Perhaps those who died last fed upon the bodies of those who died before: but all this is supposition. I can but answer for myself and for my orders to the party. For days and weeks I lay on my back unable to move. If in my enfeebled condition one or more of my men fed upon human flesh it was beyond my control and certainly beyond my knowledge. I know that I have been criticised for not telegraphing the fact of the shooting of Henry as soon as I arrived at St. John's, but you must remember that I was in a wretched condition of body and mind. I was in a quandary whether or not I should be tried for

murder, as Henry was shot on my own responsibility and not by the order of a regular court-martial."

The sickening horrors that cluster about Greely's little party of wretched cannibals have not yet half been told. The acknowledged shooting of Henry, the finding of the body of Lieutenant Kisingbury stripped of flesh, the burying of a wooden image and a few bones under the name of Private Henry, the mysterious, persistent reticence of the officers—all these point to revelations yet to come. When the official inquiry is instituted it is claimed that the present known horrible facts will sink into insignificance by the side of the terrible, ghoul-like stories that will be wrung from unwilling witnesses.

After the throng of curious visitors had left the Arctic fleet at Brooklyn the junior officer became more communicative. As the twilight settled down he grew philosophical and fell to moralizing on the awful stories the survivors had burdened him with. He seemed aching to share his secret with some one, and with little urging told what he knew of the fate of the four men that were washed away. There was no one on deck, and the monotonous lapping of the water against the dark sides of the vessel was the only accompaniment to the gruesome story whispered by the officer:

"Poor Dr. Pavy! I cannot rid myself of his image," began the young sailor, bringing his chair still closer. "He is getting to be a nightmare with me, and if he comes to me in such a manner how must it be with those mad wretches who fell upon him and devoured him? You may think the shooting of Henry was sad enough, but infinitely more pathetic was the death of this poor fellow. To lie there on his couch and see the hungry eyes of his stronger comrades gloating over his wasted form and praying for his death was enough to drive a well man mad. And so it drove this poor sick doctor to his death. He died by his own hand that the starving devils about him might have one more meal.

"The very day that Henry was condemned to die Surgeon Pavy took his own life. The despairing little company had split up into two factions, both clamoring for the death of some one that the others might live. With all his strength of character Lieutenant Greely was forced to yield to the demands of these mad wretches, and with heavy heart issued the order that took Henry from his living comrades and

placed his flesh at the mercy of the men who but a few minutes before had called him brother. This faction took the body of the dead man and kept guard over it in the graveyard on the hill. They had meat for several days and they meant to guard with jealous watchfulness their graveyard dining-room. The other faction down by the sea were without even a handful of shrimps. They knew the graveyard on the hill contained a corpse, and with loud murmurs of discontent declared that some one of their party must suffer for the rest. Dr. Pavy was the weakest of them all. About his dying couch they clustered and sat for hours unmoved, watch-



BEAR ENTERING A HUT IN THE ARCTIC REGIONS.

ing each breath and hoping that his death might not be long delayed. The mute appeal of those wild, hungry eyes, pleading for an early death was too much for him, and with a last despairing effort he rushed down to the sea and was picked up dead. Almost before the heart had ceased to beat, before the corpse was cold, those mad men—for they were mad—rushed upon the body and with their sailors' sheath knives dug into the warm flesh. They stripped long shreds of flesh and skin from off the bones while yet the muscles quivered with the life that had just gone out. These ghastly dripping morsels they carried to the little fire and hardly waiting till the chunks of meat turned brown, tore them with their teeth "

—and with a weary sigh the officer dived down into his cabin.

The records show that the body of Surgeon Pavy was "washed away." He died on June 6th. Three days before Seaman Coop died, on June 12th, Sergeant Gardiner was missed and four days later Private Bender is recorded as dead. All these bodies were reported "washed away by the sea." The fact that these men died within convenient market days of each other and the reported finding of a headless trunk other than that of Henry explain too clearly the awful meaning hidden in the mysterious explanation, "washed away."

It was late in the afternoon of August 14th when the news from Rochester reached the Arctic fleet. Commander Schley, with Lieutenants Emory and Colville, were enjoying themselves at a reception given by Commodore Fillebrowne; and the *Thetis*, the *Bear*, and *Alert* were left in charge of junior officers. The decks were alive with gayly dressed young ladies, gossiping and flirting with the handsome officers. The shrill treble of their laughter echoed from the quarterdeck, and from the comfortable cabin below came the joyous sounds of convivial merry-making. The forecastle was equally given over to jollification, and the bronzed sailors vied with each other in making their quarters attractive to the ladies. The vessels looked more like pleasure-boats than heavy Arctic ships.

In a moment all this was changed. The awful story of the eaten body spread through the crowd like a flash. The laughter grew silent, the sounds of merriment in the cabin died away. The officers turned from their fair companions to listen to the tale, and the sailor's jaw dropped over the half-told story. There was no need for further concealment. The worst was known, and the officers felt at greater liberty to talk. The visitors spoke in whispers, and touched with reverent awe the relics of the Arctic heroes. They felt instinctively that it would be a profanation to remain any longer, so one by one they stepped silently over the vessel's side.

Under the awning on the quarter-deck the junior officer told in low tones the story of the eating of the bodies as it had been told him. He was indignant that the facts had not been permitted to moulder into forgetfulness locked up in the archives of the War Department, but now that all was known,

he held that the survivors were to be honored and not blamed for the lengths they had gone to keep alive.

"Do you think that it was from choice these wretched men brought themselves to feed upon such flesh?" he asked. "Can you imagine anything more loathsome to the men themselves than their first descent upon these corpses which had but a few hours before been their living, loving brothers? Do you believe for a moment that they loved this flabby, nauseating food? It was easier to die than to live upon their brother's flesh, but their duty to their country forbade their dying, and, like noble men, they kept the feeble spark of life alive at the cost of everything but life itself. I honor them for it. It is the very acme of heroism. When all the stories of Arctic suffering have been written, and the songs of Arctic heroism sung, above them all shall stand the record of these men who ate their comrades that they might live to give to the world the fruits of their three years' toil. And if you could but hear the survivors tell of their mad hunger, of the awful suffering that crazed their minds, you would not blame them for this last sad step.

"Here, on this very spot, one of the survivors held us through all one night telling, if words can tell, of his first taste of human flesh. He would give years from his life to forget it, but, he said, that first taste, the sensation of having between his teeth the flesh of one who had been once his friend, was with him always. Waking or sleeping, he seemed to feel his lips pressing the smooth, flabby meat that must be choked down somehow if he would live. And then the inhuman, savage way of getting it! Each feeder upon such food must cut off his own shreds of flesh. No friend could be found to perform this horrible office. Every man, if he would eat, must of necessity be his own butcher. And these cannibalistic orgies, these midnight feasts, were secret. The little beaten path, worn smooth between the graveyard and the wretches' tent, told its own tale. But every dweller in that tent shut his eyes and refused to see. Body after body was stripped of flesh, but none of those that trod that little path dared speak of this. No man asked a question at the too common sight of a starving wretch, creeping up to the only fire at midnight, carrying in his hand a strip of flesh. As he thrusts this into the flame on the end of a pointed stick, no one of his companions says a word. And when tearing

the smoking flesh with his teeth he lies down, and another of the would-be sleepers rises up and goes silently down that mysterious path, knife in hand, it is easy to guess his horrid purpose.

"And the after-effects of these ghastly feasts were as awful as the descent upon the mangled corpses. The mere thought of what they had eaten brought on nausea, and in their weak state the stomach refused to retain this human flesh. Is it wonderful that these men will carry that sensation of chewing human flesh forever? 'I hope and pray I may forget it when I die,' was the only prayer that the wretched cannibal could truly pray. It was his heaven of heavens to forget that awful, sickening taste."

And so the officer went on telling in his own way all he had heard.

Commander Schley paced the deck and communed with himself. "If you only knew my position you would not ask me to say a word," he said, in a kindly, sorrowing voice. "My only duty is to the government. I have convictions, strong convictions on this subject, but I have no right to say a word now. I wish I had. At the proper time my lips may be opened, but now I dare not open them."

If the stories of the sailors can be believed, not a single body from the north in the metallic coffins but would reveal traces of the knives of their living companions. The locality in which the men lived was thought to be enough to prove the worst fears true. Shrimp could not be caught, and the obtaining of game was almost out of the question. Their camp scene had been the same, the sailors thought, as hundreds of others they had heard of, and the stories they told did not seem to be the flotsam and jetsam of the forecastle. That some of the living had to die for their companions' sake had been a foregone conclusion, and when the ill-fated Henry was shot, it is urged, it was not so much for a breach of military discipline as to fill men's stomachs.

The sailors laughed when spoken to of Henry's body. They had never seen his body or heard of it. They had seen and heard of a little pile of bones, which were as clean as turkey's legs at a poor man's Christmas dinner. The bones had been laid out on a board on the snow, and the parts were placed in what seemed to be the relative positions. Upon them were seen the indentations of sheath-knives, and long

scratches that looked as though they had been made by teeth, and if so not from the teeth of wild animals, for there are none at Cape Sabine, but from the teeth of the starving men who fell upon him before the blood had left his body. Then the body was buried, and the days grew dark again, and more futile attempts were made to catch shrimp. It was useless, and the different frozen impressions around the unmarked grave of Henry proved that more than one meal had been made of the body. Again and again it was dug up and put back into its icy coffin, only for the same reason that beef is put into an ice-box. Hence it was that when the body was taken up for the last time, flesh, which neither rotted in such a climate nor been devoured by wild animals, was gone.

The grave-yard of the starving band became their dining-room, as one of the Thetis's men expressed it, and thither they went regularly. That Lieutenant Greely was unaware that the rough hands of the sailors, which had toiled so hard in the voyage across the icy seas, were engaged in tearing away the flesh of their dead companions, is probably true. Lieutenant Greely, by his position and his natural character, was, perhaps, out of respect, kept in ignorance of the cannibalistic life the men were leading for a long time, for all the time perhaps, and yet when such a supposition was laid before one of the Thetis's men, he smiled and turned away. He spoke soon, and asked if half a dozen starving men, who had given up all hope of ever seeing their dear ones again, would make a difference in men in low or high station. Nowhere on the face of the earth had there been such a communistic city as the embryo hamlet in the North, and all must have lived the same.

A picture of the camp cannot be imagined more truly than from Commander Schley's first account of it. It was pitched by the sea at Cape Sabine. The men had two forts, one at the sea line and the other farther inland. At the sea fort the bodies were first buried. Five bodies, the commander said, had been buried here. The sea rose one day and washed away half the fort, and, peculiarly, the half in which were buried the five dead seamen. From the second fort up to the sea one of the sailors report that there was a beaten track in the snow. It was a clear and even one, and had been formed by the passing to and fro of men. Certainly not five funerals could have made such an impression. "How

was the fort erected?" was unconsciously asked, and the sailors fell back as though to answer would be to lift the veil from a dark and horrible story. But there was no gainsaying the fact that the men believed that here in the beginning one or two of the survivors had stolen out at night to this fort and, with their sheath-knives, mangled the bodies and fed where Commander Greely could not see them, and the only witnesses to their horrible banquets the white fields of snow and ice. Hunger made them bolder, the sailors argued, and Lieutenant Greely, growing weaker, did not ask where the men were going who stole out to the fort by the sea.

Horrible as this story may appear, there are facts even more terrible locked up in the frozen sea, and only whisperings of them could be obtained from the sailors. Even the flesh of the dead men became comparatively scarce, and as the chances of escape grew darker there were divisions and subdivisions of the bodies, and that human flesh was stolen just as Henry had stolen the bacon there can be little doubt. One of the sailors said that down by the camp pieces of flesh had been turned up from the snow in out-of-the-way places, giving the idea that when the men went to the fort to eat, some of them had stolen pieces of the flesh and buried them by the camp to feast on when the last of the supplies would be gone. Such things had happened before among the whalers, and men were on a level when their stomachs were empty. One of the sailors, who had turned up human flesh from the snow, remarked it to an officer, who said: "Pshaw, those are rations, and, of course, they kept them fresh in the snow," as though the meat would putrefy where thermometers were ornaments. The word cannibalism was never mentioned by the officers on the homeward trip, although it was well known that it was under discussion in the fore-castle. The fate of Henry was kept secret. Flags were wrapped above his coffin, although the greater part of his remains were in the sea or had gone to nourish the survivors, and the flags waved over a few bones and pieces of wood and cloth made in the shape of a man.

Until the death of Surgeon Pavy, of the Greely party, which occurred on June 6th, three weeks before rescue came, the flesh cut from most of the dead bodies for use by the survivors as food and bait was removed by a hand skilled in dissection. A few of the bodies had the fleshy portions cut

away entire. But with the majority the work had been so well done that a casual observer would not have suspected without further evidence, of which there was plenty, however, that the survivors had been reduced to cannibalism, and had for a long time been subsisting principally on the bodies of their dead comrades. It is not a coincidence that the body of Dr. Pavy, with those of two others who died after him, should be reported as washed away. With the surgeon gone the scalpel could not be used. Before, the bodies had been left with little mark of the terrible work done. After his death the survivors were forced to dismember the bodies and denude them of flesh in a way that left nothing but bones. So these unfortunates were reported as buried in an ice-floe and washed away, and to the list was added Corporal Sailor, who died on June 3d, and Sergeant Rice, who died on April 9th.

On most of the bodies an incision was made from the clavicle downward below the ribs. The scalpel was then passed along under the skin, and the flap was carefully laid back on either side. The flesh was then removed from the ribs, the skin was pulled back in place, and the edges were carefully joined so that there was no external evidence left of the ghastly work but a dark line. The thighs were treated in the same manner, the skin being replaced about the fleshless bones. The legs were stripped to the ankle-joints, and the arms to the wrists. The hands, feet and face were not mutilated. This was a work requiring skill, and must have been a long and careful operation. No one in the party except the surgeon could so skilfully remove the flesh from a human body and leave the skin intact. How Dr. Pavy met his death has not been explained, but it was probably by the knife. With him gone, and every day the pangs of hunger growing more unbearable, the caution was relaxed, and the survivors ate of human flesh however they could easiest secure it.

In the last days, before relief came to the wretched men, it was the doctrine of the survival of the strongest that ruled. All sense of honor and of feeling had been lost. It was Sergeant Long who first saw the steam-launch, and slid down the snow and ice from the distress signal to greet the rescuing party. His face and beard were covered with blood from a duck which he had recently shot and had been eating raw. It is stated that he stopped to conceal half the body of the

bird before sliding down the snow. He was the strongest of the party, and, despite the frightful gale, was able to walk to the launch. Sergeant Fredericks also had considerable strength left, and clambered on board the *Thetis* almost unaided. After so many months in the desolate Arctic regions, after so much suffering, and passing through such scenes of horror, it was seldom that the men stood upright. They crawled about on their hands and knees over the rocks and ice, and when Sergeant Brainard was undressed on board the *Thetis* his knees were found calloused to a thickness of over half an inch. In the midst of such horrors it was wondered by the rescuing party how Greely and his few companions kept their reason. About the camp were scattered bones of the dead, and dissected and mutilated bodies were half exposed in the little burial plot back of the tent. It was a scene at which the rescuers shuddered as they looked and the truth stood revealed.

The bodies of those who died natural deaths were not mutilated where death had been caused by disease. As to how many died of scurvy accounts differ. Commander Schley reported seventeen as having died from starvation. Sergeant Cross, the first of the exploring party to die, passed away last New Year's day, according to Commander Schley's report. He did not die of starvation, but from the use of liquor. He would drink anything that had a suspicion of alcohol about it, even paint. This love for liquor was so strong among some of the sailors of the relief party that the carpenter, using a little alcohol with which to mix shellac, was obliged to guard it as a miser hides away his money. Sergeant Connell, one of the rescued, says that Cross died of scurvy on January 18th. At St. John's it was reported that one of the two men lost on April 9th died of scurvy. With several dead of scurvy and Henry shot, all did not die of starvation. Instead, it is feared that others met death as Henry did. It is known that court-martials were of frequent occurrence in the Greely camp. Dr. Pavy was on trial no less than three times. There were dissensions among the men, and as their condition grew more desperate these increased. Until weakened in body and mind by privation each did all he could for the others. But at the last the struggle for life became single. It was each man for himself.

The officers of the relief vessels still refuse to say anything on the unpleasant subject, as is their duty. Sailors talk freely. But some of the scenes they describe are too revolting for repetition. At the Greely camp matters were found in as bad a condition as it is possible to imagine. The disinterment of the remains of Lieutenant Kislingbury has shown only what could be revealed by the opening of any of the other iron coffins. Where only scattered bones were left no attempt was made to put them together except in the casket marked Private Henry.

Frederick Taylor, member of the Thetis crew, and one of the men who rescued Lieutenant Greely from his starvation at Cape Sabine, returned to his home in Buffalo. The writer, who called on him, was shown a piece of the identical seal-skin for stealing which private Henry was shot. It looks like a pretty tough morsel for food, being simply leather and nothing else. The hair had all been boiled or scraped off. Samples of Arctic willow, six or eight inches high, out of which tea was made, were also preserved by Mr. Taylor; likewise reindeer moss and lichens from the rocks. A tusk of walrus from Saunders' Island represents to him a visit to the most northerly settlement of human beings. A faded piece of brown bunting (once red) and a strip that was once white is preserved as a relic of Lieutenant Lockwood's northerly venture, being part of the flag planted there for a few hours. Another flag-relic is a piece of the signal of distress flown at Camp Clay, four miles from Cape Sabine. A model of a "kyak," or Esquimau canoe, is prized very highly for its beauty of construction. A bull's-eye lantern and a skein of woollen yarn were rescued from the Greely camp as souvenirs.

CHAPTER XXIX.

CONCLUSION.

The Greely Records—His Official Report Sent In—Views of Prominent Officers and Scientists Regarding the Greely Expedition—Dr. Emil Bessells, General Bennet, Mr. George Keenan, Lieutenant Danenhower and Nindemann Denying Sensational Reports—The Condition of Greely's Men when Found—An Unofficial Report of Lieutenant Greely—Some Blame for Greely—Sergeant Brainard—In Defence of Lieutenant Greely—The Relief of Greely—Report of Commander Schley of the Expedition—Just in Time—Desperate Situation of the Party on Arrival of the Relief Ships—Terrible Suffering and Death—The Condition of the Camp—Six Bodies had been Cut and the Fleshy Parts Removed to a greater or less Extent—General Hazen on Garlington's Failure—Congressional Investigation Suggested.

THE records and relics of the Greely Arctic expedition, which were brought to New York by the relief party and there turned over to the authorities at Governor's Island, a few days later were brought to Washington and delivered to the chief signal officer. The latter directed Lieutenant Ray, of the signal service, the officer who commanded the Point Barrow expedition, to take charge of them. They will be used by Lieutenant Greely in making his report of the expedition, and by the chief signal officer in making his report to the secretary of war. The collection includes all the records of the scientific work and discoveries of the Greely party, their instruments and the private papers and diaries of members. General Hazen says that when the expedition was fitted out every member was supplied with blank books in which to keep his personal record of the events of his stay in the Arctic regions. It was the understanding that these records were to be their personal property, and were not to be subject to the supervision of Lieutenant Greely or any one else. Seventeen of them are now in the custody of Lieutenant Ray. Their contents will be considered as confidential between the government and the writers, and while portions of them will be used, as it was intended they should be when provision was made for their compilation, in making up the history of the expedition, nothing that they contain will be

made public until Lieutenant Greely's report of the expedition has been made.

The report of Lieutenant Greely was sent in by him during the latter part of September, and will be published with the report of the Chief Signal Officer, General Hazen.

Dr. Bessells, chief of the scientific staff of the *Polaris*, upon being asked by a reporter soon after the arrival of the rescuing fleet what he thought of the work Greely had done, said:

"As to the real scientific work of the expedition, we as yet know very little, but Greely probably followed his instructions, and made all the observations required by the International Conference held at Hamburg. As one of the geographical features of the expedition, I may mention that Lieutenant Lockwood and Sergeant Brannard reached latitude 83 deg. 24 min. north, getting about four miles north of the highest point reached by Captain Markham of the English expedition under Sir George Nares on May 12, 1876. The highest point reached by the International Station officer is apparently an island, which they have named after Lieutenant Lockwood. 'From an elevation of 2,000 feet' they saw no land to the north, which proves that Greenland actually does not extend beyond the eighty-fourth parallel, as I have proved myself several years ago on theoretic grounds by means of tidal wave observations. The tidal wave, following the east coast of Greenland, passes along its northern border and enters Robeson Channel. Another point of geographical interest is the fact that the expedition supposes that it actually sighted the west coast of Grinnell Land, running almost due south from the farthest point reached by Lieutenant Aldrich in May, 1876."

Here Dr. Bessells referred to the despatches, and, with compass and pencil, marked out the points referred to, and sketched the hitherto unknown western border of Grant Land. Lake Hazen, Ruggles River, Weyprecht Fiord, the Conger Mountains and Mount Arthur, he said, were newly discovered and newly named places. Continuing, Dr. Bessells said: "That makes Grant Land a peninsula connected with Grinnell Land by an isthmus, as Boothia Felix is connected with the northernmost coast of the continent. Another point of geographical value is what they say about Hayes' Sound, about the western extension of Hayes' Sound, which in-

creases the distance of the latter from its mouth by twenty miles. When the Polaris expedition, after having been shipwrecked, wintered near Etah, an Esquimaux settlement, they were informed by the natives that Hayes' Sound was not landlocked, but that it connected with the Western Sea, thus making Grinnell Land an island. The English expedition, under Sir George Nares, judging from the sluggishness of the tide, considered it a bay of no great extent.

"Greely seems to have brought his instruments and records all away with him. If we consider how difficult it is to carry heavy instruments like a magnetometer, etc., Lieutenant Greely can scarcely receive too much praise. The value of his records of observations would not have been as great if the instruments with which the observations were made had not been brought back for comparison with the standard instruments kept here."

Dr. Bessells criticised with some severity the judgment of General Hazen in the organization of the relief expeditions. The first, he said, was placed in command of an intemperate man, and the second was under the control of a cavalry officer, who had never had any nautical experience and whose orders were very vague. It would probably turn out, Dr. Bessells said, that Greely had provisions enough to last another year at Lady Franklin Bay. With respect to Commander Schley's report of the condition of the ice in Smith's Sound, Dr. Bessells said it was yet too early to form an opinion as to what the season would be. The ice never breaks up so early, and it would be folly to attempt to pass north before the middle of August.

General Bennet, Chief of the Ordnance Bureau, who was president of the court of inquiry which investigated the failure of the Proteus expedition, was asked if the failure to establish a station at Littleton Island had anything to do with the loss of so many of Greely's party.

"I am afraid it had a great deal to do with it," was the reply. "Lieutenant Greely confidently expected to find succor at Littleton Island. He abandoned his station at Lady Franklin Bay early in August and proceeded southward. He was so confident of finding supplies farther south, that he did not use all those which had been cached on his way down. Upon reaching Cape Sabine he found only the stores which the Proteus cached, 250 rations, and the small amount left

by Nares in 1875. According to the despatch he came below Cape Sabine as far as Baird Inlet, where he abandoned his boats. Why that was done we do not know. He was for nearly a month on an ice floe, which drifted him back to Cape Sabine, where he made his permanent camp. He had but few stores to subsist on, but it was the best he could do. Littleton Island is in a southeasterly direction from Cape Sabine, only about twenty-five miles distant. He could not reach it, because the channel was open. If he had been able under the circumstances he would have been worse off than he was, because only 250 rations were there left by Beebe in 1882. But suppose a station had been established at Littleton, and men left there with provisions, boats and telescopes, as Greely expected would be the case, the whole party might have been saved. Greely would have signalled from Cape Sabine, as he probably did in vain. If the party had been seen, as they probably would have been, the men at Littleton Island would have made an effort, and probably a successful one, to cross over and rescue them, notwithstanding stormy weather."

Mr. George Kennan, of Washington, D. C., who has taken an active interest in the recent attempts to relieve Greely's party, and who went before the Arctic relief board last spring to urge the offering of such a reward as would secure the co-operation of the whaler in the search, was asked by a reporter what he thought of the news received from St. John's. He replied: "It is a story of remarkable and heroic achievement in the field, clouded by disaster due to incompetence in Washington. If Lieutenant Greely and his party had all returned in safety to the United States, as they might have done had they been properly supported, their Arctic record, in point of skilful management and success, would have been unparalleled. No other Arctic expedition has ever spent two consecutive winters and part of a third in such high latitudes and achieved such results without a casualty or a single case of serious sickness. If Lieutenant Greely had found at the mouth of Smith's Sound the shelter and food which he had a right to expect there, he would probably have brought his entire party back to the United States in perfect health, after three winters in the highest northern latitudes that have ever been reached, and after a series of sledging campaigns, which for boldness and skilful execution have rarely been surpassed."

"Could the disaster which befell his party have been averted with the knowledge available at the time the relief expeditions were fitted out?"

"Unquestionably; and that is the pity of it. It doubles the grief which must be felt in the face of such a terrible catastrophe to think that two ships on successive years, and probably a third, were in a position to land stores which would have saved the lives of those eighteen dead men. Beebe, in 1882, anchored in Payer Harbor, just north of Cape Sabine, with a ship full of stores. Garlington, the next summer, anchored in the same place, also with a ship full of stores, and a few days later the Yantic, with four months' provisions on board, was only thirty miles away. Any one of these three ships might have landed stores enough, exactly where Greely afterward made his winter camp, to have carried that brave party through; but their commanding officers were not ordered to do so, and they did not think of it."

"Were Greely's movements those which it was anticipated he would make?"

"They were precisely such as I anticipated. It was thought at the Signal Office that he would remain at his station until September 1st; but as I pointed out in a letter to the *New York Herald* on the 17th of last September, if he remained until September 1st he could not get away at all that year, on account of the impracticability of sledging operations along that coast in the fall. I therefore thought he would abandon his station in July or August, 1883, and come down to the mouth of Smith's Sound in boats, as he was, in fact, doing at the very time my letter was written. It was of course a terrible shock and disappointment to him when he failed to find the shelter and food which he expected, but the party seems to have faced the terrors of an Arctic winter, without shelter, fire, or adequate food, in a most heroic manner, and to have held out to the last with unflinching courage and extraordinary tenacity. If a few hundred more rations could have been saved from the wreck of the *Proteus* they would have carried the whole party through. All but one of the dead perished last spring after the 4th of April."

"If Lieutenant Garlington had landed stores on his way north at Littleton Island, in accordance with what were known as his 'supplementary instructions,' would such stores have been of any use to Lieutenant Greely?"

"As it turned out, not the slightest. There were a few hundred rations on Littleton Island, but Greely could not get across the tossing ice of Smith's Sound to avail himself of them. The place to land stores, as repeatedly pointed out by Dr. Hoadley, Mr. Merriam, and others, and as shown by the example of the Nares expedition, was the western coast of the sound—the coast that Greely must come down—not the opposite coast, which he might never reach. It is to the caches made by the British expedition of 1875 on the western coast that the few survivors of Lieutenant Greely's party mainly owe their lives."

"How important are the discoveries made by Lieutenant Greely?"

"From the point of view of an Arctic geographer they are of first-class importance. Lieutenant Greely has not only taken away from Commander Markham, of the British navy, 'the blue ribbon of Arctic discovery' for the highest latitude ever attained in any part of the world, but he has greatly extended the limits of the Nares explorations both in Greenland and Grinnell Land, and has given a severe blow to Captain Nares' palæocrystic ice, and the theories which the latter founded upon it. The fact that two of Greely's sledge parties were stopped by open water in the polar basin, and that both were at times adrift in strong currents which threatened to carry them helplessly away northward, would seem to show that the polar basin is not the solid sea of ancient, immovable ice which Nares described, and which he declared was 'never navigable.' Lieutenant Greely's explorations extended over three degrees of latitude and nearly forty degrees of longitude. He has virtually ascertained the true outline of Grinnell Land, has crossed from east to west, and on the northern coast of Greenland has gone one degree of latitude and ten degrees of longitude beyond the farthest point reached by Captain Nares' accomplished sledging officer, Lieutenant Beaumont. These achievements alone reflect the highest credit upon Lieutenant Greely and his men; but to them must, of course, be added the great mass of scientific knowledge gathered by the party during their two years at Lady Franklin Bay, the records of which have fortunately been saved. When these observations have been collated and put in order, they will be found not second in importance to any furnished by the circle of international polar stations."

Lieutenant Danenhower, U. S. N., of the Jeannette expedition, who is now doing duty on the Minnesota, said, concerning the relief of the Greely party, that the Thetis relief party was the best equipped that was ever sent to the northern latitudes. He was asked whether there could not be a cause for regret that such a well-prepared fleet had not pushed its way farther north after having accomplished its object.

"No," answered Lieutenant Danenhower. "That expedition started out with definite instructions, and it could do no more than carry them out. I know that Commander Schley went up there with the single object of finding the Greely party and returning after having done so. If personal ambition had ruled his movements there is no telling what he might have done. But he acted conscientiously, expeditiously, energetically, and skilfully, and we have the great result. He might have pushed his way through Smith Sound as he did through Melville Bay. Smith Sound is the most treacherous part of the Polar Ocean. But Mr. Schley's caution, prudence, and admirable discretion made him successful in his undertaking."

Referring to the hardships the Greely party must have undergone, Lieutenant Danenhower said: "Their journey over the ice from Fort Conger to Cape Sabine must have been terrible. The distance, if I remember rightly, was 250 miles. At Cape Sabine Greely probably found the records of Lieutenant Garlington. The explorer's must have seen the relief ship in the offing, and crawled as best they could out on the ice to meet her, for the despatch says that they were picked up about five miles out from the cape. It is remarkable that an Esquimau should have been the second man to die. And another Esquimau died among the first—on April 24th. This would seem to show that the white man can outlive even the Esquimaux under such circumstances; although, perhaps, those poor fellows overworked themselves as did Alexei of the DeLong party. Speaking of the strength of men, Lieutenant Greely was considered a delicate man, and most people believed that he would give out under hardships. We now see that he did not. His wife always expressed confidence in his physical and mental capacity, and during all this suspense had borne herself in a dignified and sensible manner."

Lieutenant Danenhower spoke of a couple of the lost men whom he knew. He said that Sergeant Edward Israel, of the Signal Corps, the astronomer of the party, was very highly esteemed in his home at Kalamazoo, Michigan, and was looked upon by his fellow-townsmen as a man of whom bright things were expected. Mr. Danenhower saw Israel's widowed mother last winter, when she had about given up hope of seeing her son again. Of Second Lieutenant Frederick W. Kislingbury, Lieutenant Danenhower said that he had rendered important service during the war as a volunteer, and was afterward appointed to the regular army. Kislingbury was from Rochester, New York, and left two children.

In further conversation the lieutenant said: "In September last Professor Joseph Lockwood, of the navy, now on the retired list, advocated the plan of sending a 'forlorn hope' expedition of relief after Greely. The scheme was deemed impracticable. From the evidence now before us we know that if a vessel had been able to get to Cape York at that time it would have reached Cape Sabine, for the channel was so open that Greely's party could not get from Sabine to Littleton Island, having abandoned their boats. The condition of the ice at that season in Melville Bay is not known. It is almost impossible for a ship to work through the bay in the darkness of the polar nights. It must be remembered that this expedition had the advantage of continuous daylight.

"I have always said, in reply to questions that have been put to me, that some of the Greely party would be found alive. I did not think, however, that Commander Schley would reach them before the middle of July. They must have sustained themselves wonderfully for nine months. Sir John Franklin's party and DeLong's party also endured terrible privations and sufferings for extraordinary lengths of time."

Lieutenant Danenhower was asked as to the possible causes of Greely's mishap. "I do not hesitate to express the opinion," he replied, "that Greely was sent too far north. There are eleven stations up there, but Greely was thrust some ten degrees farther north than some of the others. Point Barrow, for instance, is in 72° north, while Greely had to go up to 82°. He would not have been ordered up there had it not been for English reports. The International Congress decided that Greely was too high up."

As to the benefits of Greely's search and polar expeditions generally, the explorer said: "No doubt Greely has a series of valuable observations, as such, but it is not at all certain that deductions of great value will be made from them. As far as I can see from study and experience, nothing of great value has been obtained from meteorological observations in the polar regions, and nothing is likely to be. I think there are much better fields for exploration and scientific work. The statement is made by scientists that the most favorable stations for meteorological observations are in the polar and equatorial regions—the extremes. The last Congress proposed to establish eleven stations within the Arctic circle, but I have heard of no station near the Equator. The world—possibly excepting the Germans—is tired of polar expeditions, anyhow. I believe that they should cease until some special means of locomotion, such as air-machines, are devised. That may sound strangely, but I say it seriously. They are of no use as weather stations, because they cannot take a long enough series of observations and cannot be sufficiently numerous."

One of the most delighted men about the Navy Yard was Quartermaster Nindemann, of the Jeannette expedition. He was at work in the rigging loft of the yard when approached, and opened a conversation on the Greely trip. It was a topic on which the man had talked so much that he at once started off on an interesting discussion of the subject. When asked whether in his opinion the Greely party would be found he at once said: "Yes. I feel confident that some of them will be found alive. They may be on their way drifting southward, perhaps in Lady Franklin Bay, and it would not have been impossible for them to drift to Littleton Island." Nindemann who has seen so much service in the Arctic region gave an interesting account of various hardships through which he and others had passed, while floating along on the ice. He was trying to show how it was possible for the Greely party to get along on the ice, for he had not yet been informed of the receipt of news about the rescue. He said:

"When the survivors of the Polaris expedition were picked up in the ice in April, 1873, I was one of them. We had drifted 196 days. It stands to reason that the Greely boys, who were better supplied than we, ought to stand as good a chance at least. We had a tough time of it. Nineteen of us

were blown off on the ice. Fourteen were left on the ship. We had only a quarter of a pound of bread and meat a day per man, and for the last twenty days before the Tigress picked us up we had only two crackers a day. Once in a while we captured a seal, but that was very seldom. Oh, I think the Greely party will come out all right."

The writer thought it but fair then to inform the hearty, looking sailor that he had formed a correct opinion of the case, and that the despatch from St. John's told of the rescue of a certain number of the party. He stood and looked half in doubt, half fearing that there was but an attempt at a very ill-considered joke; and then seeing that the writer was the bearer of really true information, he seized his hand with zeal and a great amount of pressure, and said: "Well, thank God for that! And the Bear party found them, did it? I can't say I am surprised, for I have been looking for it, and yet you have shaken me all up. I had it pretty straight, didn't I? It's mighty good news for some folks, but think of the poor fellows who have dropped out. There'll be a sad ending to a long waiting for their friends."

Sergeants Brainard and Long and Private Connell, of the Greely Arctic expedition, who were exhibiting for some days at the Dime Museum at Cleveland, Ohio, were shown telegrams from Washington stating that an army officer, who had seen the diaries of the expedition, says the survivors when found were in two parties, one headed by Brainard and the other by Long, living separately as two tribes, and refusing to speak to one another; that Greely was an invalid the last few months, and the party headed by Brainard cared for him like a child; that the stealing of rations was a common practice; that hunters sent out for birds concealed them for themselves.

All of these statements Brainard, Long, and Connell deny emphatically, and insist that the party was not divided, but say that while five slept in the wall-tent Brainard and Long slept together under the fly of the tent because the interior was not large enough for all. Sergeant Brainard says Lieutenant Greely walked out every day, and was able and competent to command the party, which he did throughout.

All agree that nobody except Henry was shot. A special report of the same army officer says that Brainard when found was much stronger than the rest; that when he came

aboard great surprise was expressed at it; that when asked why such was the case he said: "Oh, I could eat the stuff and digest it, but the others couldn't;" that when some one of the rescuing party remarked upon the absence of Dr. Pavy's body and expressed wonder as to what became of it, Brainard said: "He is all gone. I finished the last of him just before you arrived."

This report being shown Brainard, he said: "I don't know who the army officer is, but whoever he may be he is a slanderer. I was not the strongest of the party, and, moreover, I was not on the Bear, but came home on the Thetis. The story is a lie out of whole cloth." Sergeant Long and Private Connell corroborated this denial.

Commander Schley, when asked about the condition of the Greely party when found, said:

"I am very glad indeed to be here. Our voyage was quite a sailing away from the joyous, sunny, pleasant world that we are accustomed to. I did not suffer from the effects of the exposure to any great extent. I had no uncertainty or anxiety to prey upon my mind. I was absolutely certain of what I had to do, ready for any emergency, prepared for the worst or the best, and had the utmost confidence in my men. My only regret was that it was not a year earlier. The voyage was, of course, one of peril and discomfort, but I did not lose or gain a pound's weight, and am in very good health. The whole voyage was one of sensational scenes and incidents, perilous moments, furious storms, narrow escapes, etc., but there was nothing to compare with the terrible impressiveness of the hour of rescue. The only tears I have shed for many a year were shed on that memorable occasion, and there was not a man who could retain his composure. The scene was inexpressibly horrible and thrilling. A little camp of survivors, looking actually like skeletons, and nearly all of whom were in the last stages of starvation, while one at least, Connell, was actually in the very agony of death, doomed to die within an hour if nourishment had not been at hand, and unconscious for two days afterward that he had been saved. The little camp, desolate, filthy, barren, on an ice-bound coast, with the long row of graves that told their story with awful pathos—the first grave made with all the care and skill that a village sexton could have bestowed upon it; the second less carefully constructed; the third more narrow and shallow, and

the others showing waning strength and failing energy, until the last body that had just been dragged out of sight of the camp, and left to the mercy of wind and storm uncovered, because no one could lift the earth or ice with which to cover him. The picture was a terrible one indeed, and the days immediately following were scarcely less terrible. Greely, and those of his party who were rescued, were bathed in the cabin. They were perfect skeletons wrapped in skin. Every bone was clearly visible. Hips and ribs were frightfully prominent. Those men were hungry every five minutes; ravenous is an inadequate word."

"When will your report be made?"

"It will go to Secretary Chandler within ten days, describing every detail of the expedition from its inception to its abandonment, illustrated by 300 instantaneous photographs and covering 250 pages."

"What will it tell about cannibalism?"

"Nothing whatever. The discovery of the living and the dead will be accurately described, the mutilation of the bodies, etc., but no conclusions will be drawn. I really know nothing about it, as I have repeatedly said, and it is not my business. The trouble has been that too much has been said. Lieutenant Greely, however, has very discreetly kept quiet, and will, doubtless, explain everything in due time. At the time of his rescue Greely was the weakest physically and strongest mentally of the entire party. I have seen the statements about dissensions in the party, and that Long and Brainard headed separate parties at the time of the rescue. I saw nothing to indicate this, and know nothing about it. Without defending Lieutenant Greely at all, I should not make up my mind against him in any particular before his official report has been made. I can see no sense in the desire to exhume Private Henry's remains. I have officially stated that his body was one of those mutilated, and nothing more could be accomplished by its disinterment."

Before sections F, G and H of the British Association for the Advancement of Science on September 3d, 1884, Lieutenant Greely amid unbounded enthusiasm was called on by Sir Henry Lefroy, the presiding officer, who said that the British Association felt honored in being able to honor Lieutenant Greely as the brave explorer who had surpassed the brilliant achievements of a glorious line of predecessors, and

had been successful in the honorable desire to plant his national flag nearest to the North Pole, thus exceeding the noblest efforts ever made. Referring to the persistence of purpose shown by Lieutenant Greely's party in bringing back the pendulum apparatus, he remarked that there was nothing nobler in the annals of scientific heroism than the determination of these hungry men to drag the cumbersome box along their weary way.

It was fully two minutes after rising before Lieutenant Greely could speak, so great was the outburst of enthusiasm which greeted him. In introducing his papers he remarked that he was surprised to learn that the ground did not thaw lower at Lieutenant Ray's station, which was ten degrees farther south than his own, where the ground thawed to a much greater depth—namely, twenty to thirty inches. In regard to an open polar sea he differed from Lieutenant Ray. He did not believe there was a navigable sea at the Pole, but he was of the opinion that there was open water somewhere about. Lieutenant Greely's paper, which was entitled "Recent Discoveries in Northern Greenland and in Grinnell Land," was as follows:

"The geographical work of the Lady Franklin Bay Expedition covers nearly three degrees of latitude and over forty degrees of longitude. Starting from latitude $81^{\circ} 44'$ and longitude $84^{\circ} 45'$, Lieutenant Lockwood reached, May 18th, 1882, on the north coast of Greenland, latitude $83^{\circ} 24'$ and longitude $40^{\circ} 46'$. From the same starting point he reached to the southwest, in May, 1883, Greely Fiord, an inlet of the Western Polar Ocean, latitude $80^{\circ} 48'$ and longitude $78^{\circ} 26'$. This journey to the northward resulted in the addition to our charts of a new coast line of nearly 100 miles beyond the farthest point seen by Lieutenant Beaumont, R. N. It also carried Greenland over four hundred miles northward, giving that continent a much greater extension in that direction than it had generally been credited with. The vegetation resembled closely that of Grinnell Land. Among the specimens brought back the Arctic poppy and several saxifrages were identified. About the eighty-third parallel traces of the polar bear, lemming and Arctic fox were seen, and a hare and ptarmigan were killed. Lieutenant Lockwood and myself journeyed across Grinnell Land and examined into its physical condition, discovering what may have been hitherto unsuspected,

that between the heads of Archer and Greely Fiords, a distance of some seventy miles, stretches the perpendicular front of an immense ice cap which follows closely from east to west the eighty-first parallel. The average height was not less than 150 feet. The undulations of the surface of the ice conformed closely to the configuration of the country, so that the variations in the thickness of the ice cap were inconsiderable. In about sixty miles but two places were found where the slope and space were so modified as to render an ascent of the ice possible. This ice cap, extending southward, covers Grinnell Land almost entirely from the eighty-first parallel to Hayes Sound and from Kennedy Channel westward to Greely Fiord in the polar ocean. In connection with the line of perpetual snow I may say that on Mount Arthur it was not far from 3,500 feet above the sea. From barometrical measurements it appeared that the crest of Grinnell Land was of about 2,500 feet elevation in front of the southern ice cap and 3,000 feet near Mount Arthur."

Lieutenant Greely was frequently applauded and sat down amid expressions of the liveliest satisfaction. He spoke very plainly, and the only effect of his recent exposure visible was the nervousness noticeable by a flush on his face.

Admiral Sir Erasmus Ommanney, Royal Navy, delivered an address and expressed his belief that Lieutenant Greely's searches will be productive of very important results.

Lieutenant Greely, rising to reply, remarked that he was extremely flattered at his reception and at an indorsement from such eminent men as had spoken. He took occasion to say that a fact had surprised him. It was the discovery that when the tide was flowing from the North Pole it was found by his observations that the water was warmer than when flowing in the opposite direction. He took the trouble to have prepared an elaborate set of observations showing this wonderful phenomenon, which would eventually be published. To him these peculiarities were unexplainable, and he hoped that the observations would be studied by his hearers, and some explanation found in regard to the thermometric observations of the expedition. He remarked that the mean temperature for the year of the hourly observations was 5° below zero, which justified him in saying his station was the coldest point of earth ever reached.

The Arctic steamer Lock Garry, as she lay at the Brooklyn

Navy Yard shortly after her arrival, looked dirty and deserted. The only sign of life on her deck was a large, short-tailed, black-haired dog, the property of Ensign Chambers. This animal looked more like a bear than a dog and paced restlessly up and down the deck, occasionally stopping to sniff the air, as though not satisfied with its surroundings.

Within the vessel the scene was changed. Cooks were rushing hither and thither preparing for dinner, while the officers and crew lounged about discussing Arctic expeditions, the weather and their prospects for returning to Dundee, Scotland, where they all belong, and where the Loch Garry is owned. Among them were Captain R. Jones, of the Loch Garry, and Chief Officer Campbell and Lieutenant Reamey, who brought the Thetis to this port from Dundee. All are Scotchmen. Ensign Chambers, of the navy, was not on board, having left the vessel a few hours previous to visit friends in the city. When questioned in relation to the expedition the Dundee men declared that they had been ordered to "keep their mouths close" and "leave the talking to the American authorities."

"Ensign Chambers has all there is," said one of the officers, "and he will tell you what he pleases of the expedition."

"Is there anything about it which he will not tell?" was asked.

"Oh, no. Commander Schley's expedition was a success, but it would not have been if the whalers had not shown the relief vessels along. Why, at one time, while on the way to Disko, the vessels encountered some heavy ice floes, which the Thetis began trying to blast with torpedoes. Commander Schley said the ice was impassable, and while discussing the situation along came a little whaler and crashed through the barrier. Before the commander recovered from his astonishment the whaler was almost out of sight.

"I don't believe Ensign Chambers will tell you how the Loch Garry was fitted out. We were promised heavy furs, boots, hats, gloves and snow-glasses and other things to fight the cold and ice. All we got were two wheelbarrows for carting coal and two ice-anchors. Our little vessel, with her three-inch plates and no fortifications inside, was utilized to break up the ice for the relief vessels on many occasions. The latter vessels were all as strong inside as iron could make them. Besides all that Lieutenant Greely and his party were

not as friendly to Commander Schley as people rescued under such circumstances generally are."

"What was the difficulty?"

"I don't understand it exactly, but Greely thought that army men instead of navy men should have been sent to him, and a coldness between the rescued and the rescuers has sprung up. The fact of the matter is Greely would have stood a small chance of being rescued had the expedition been composed of other than navy men. If there had been any sailors on the Proteus expedition that vessel never would have been lost. Army people ought never to have been sent up in the Arctic regions. If the United States had fitted out a whaler with whaling men, Greely would have been rescued a year ago."

"What is thought of Greely's work?"

"He has done a deal of good work, but he is solely to blame for the loss of the nineteen men of his party. In St. John's, Newfoundland, there was much talk against him. The relatives of those lost men will have an investigation before long, and the public will know of matters that the authorities are endeavoring to keep quiet. Greely did well, for a soldier, until he struck that floating cake of ice; then he began to show his weakness. There he stayed and allowed his men to die off like sheep. The season was in his favor, and he could easily have reached Littleton Island, where there were provisions enough for ten months or more. He was only twenty-five miles south of that island, and he could have made the distance in less than two days. He allowed one poor fellow to start out alone, while twenty-five able men lay around and starved to death. A combined movement would have saved them all. They were afraid of the water, that's all, and when they got on the ice they wouldn't move. Instead of using the boats, which were intended for the purpose of reaching supply stations by water, they chopped them up for fuel. Ninety miles to the south of them was the Cary Islands, where they could have found food and shelter for time eternal. They could have lived with the natives, and would have been rescued by whalers had they endeavored to go south, instead of losing all heart and lying down to die. They had only to drag their boats over ice here and there to reach Littleton Island, and it would have been less difficult to get to the Carys.

"The men on the Proteus suffered greater hardships between the time their ship was lost and the time of their rescue than Greely and his party would have had to endure had they endeavored to reach either of the isles. Greely's party took the most barren place in the Arctic regions to die, when they could have reached a better spot and lived. The living are all heroes, but justice should be done to the dead, and Greely will have some hard questions to answer in a short time. He has not told a connected story yet. The men on the Thetis declared they could not understand his tale. They are guarding him closely for fear some person may get hold of him and something may come out.

"The Alert was a hindrance to the expedition. She is a helpless old tub, and it took most of our time, after June 25th, to look after her. One good vessel with men who know the Arctic regions on board would have rescued Greely long ago, and the United States government would have been saved a sight of money."

A naval officer, who was on board one of the Greely relief vessels, on September 5th said:

"I saw the interviews with an officer, and I think a great injustice is being done to Sergeant Brainard. One look at that man would be sufficient to satisfy you that the statements made regarding him are untrue, and Brainard is right in denying them. In the first place, he did not board the Bear until several weeks after the party was rescued. Neither was he the strongest man of the party."

"Who was?" asked the writer.

"Why, Long was decidedly the strongest. He met the rescuing party and was able to walk when taken aboard of the Bear, while Brainard had to be carried."

"Perhaps Brainard's name has been confused with Long's?" was suggested.

"That may be," was the reply, "for I fancy that Long would be much more likely to say such things than Brainard. Why, Brainard was practically the head of the expedition after Greely became incapacitated for duty, and he showed himself possessed of ability far above his station. Long was the hunter for the party, and he was a dead shot. There is no doubt in my mind that he kept more than his share of the game killed. When he met the rescuing party his mouth was all bloody, and when, a little later, the winter camp was

visited by two officers and Ice-pilot Norman, the latter picked up the bodies of two eider ducks recently killed, and evidently placed there for safe-keeping."

"Was there cannibalism?"

"Why, of course there was; but I believe Greely didn't know of it, and if he ate human flesh himself he didn't know it."

"Was the subject ever mentioned?"

"Not that I know of. When it was announced that the bodies were to be taken aboard ship Greely urged that they be left where they were buried. Lockwood, he said, particularly requested it. That was all right, for Lockwood's body was not mutilated. Brainard didn't tell of any cannibalism, you can rest assured of that. I don't think any of the diaries which are preserved mention it, but it is supposed that Schneider's diary, which was lost, made some reference to it. It was either picked up and secreted by one of the men, or was thrown overboard with Greely's sleeping-bag by mistake. When the diaries are published, Lieutenant Lockwood's will be far the most interesting. It is very full and written entirely in shorthand, and nobody has yet read it. The mutilation of the bodies was done by a skilful hand, and there is no doubt but that the hospital steward used the knife after the decease of Dr. Pavy."

"Did you see any signs of a division in the party?" was asked.

"No, sir; and that is another mistake. When the survivors were found they were all under one tent; that is, all were camped in the tent but three, who were just outside a flap of the tent. Even Lieutenants Greely and Lockwood had no serious misunderstanding up to the time the boats were abandoned.

"The criticisms upon Greely's lack of discipline are unwarranted. He said that he would take no initiative steps against anybody, and would wait until attacked, and although he is no particular friend of mine I know that he will come out ahead. He has never said a word against Hazen, but he has criticised Garlington severely for not examining the cache of provisions at Payer Harbor as directed. If he had done that and left a fresh supply, instead of the spoiled rations that were there, probably many more of the party would have been able to pull through. Greely's work was remarkable. He brought

every man to the place he said he would two days before the time fixed, where he had every reason to expect assistance. He must have exercised discipline or he never could have done it.

"At Cape Sabine Dr. Pavy and one of the men came into his tent and insisted upon an immediate division of the supplies on hand. Greely emphatically refused, and when they further insisted he ordered them out of the tent, weak as he was, threatening to shoot them on the spot if they did not go, and they went. Every officer of the relief expedition has expressed admiration for Greely's pluck and management, and if there is a fight about the matter you may rest assured that Greely will hold his own. He is no fool. He will undoubtedly be promoted unless there is strong opposition in high quarters. But that story about Brainard I will bet anything is not true. If he had gone quietly to his home on a farm they couldn't help making him a lieutenant. He deserves it if ever a man did. Long might have been the man meant, but not Brainard."

"I see," continued the officer, "that some one is again quoted as saying that all the survivors were taken aboard the Bear, and that the Thetis was not present. That's a mistake. I will tell you just how it was. The Thetis arrived at Littleton Island first on the 22d of June, and the Bear arrived about 2.30 in the afternoon. Both vessels started for Payer Harbor together. The Thetis arrived first and was made fast to an ice-floe. Captain Schley immediately sent out two search parties under Lieutenant Taunt and Ensign Harlow, and another was sent out by the Bear as soon as she arrived. Lieutenant Taunt's party found the records of the Greely party off top of Brevoort Island, and returned to the Thetis with them. Those records told where the survivors were camped. The steam-launch of the Thetis was broken, so that of the Bear was sent with people from both ships to the camp, which was only about four miles distant. The Bear, not being fastened as was the Thetis, was boarded by Captain Schley and steamed for Cape Sabine, and the Thetis remained, sounding her whistles for the search parties to return, which was the signal heard by the Greely party in camp. The Thetis picked up the other two search parties, Harlow having found the instruments in another cache, and arrived at Camp Clay about ten minutes after the Bear. Boats, officers,

and men were immediately sent ashore to render assistance. Three of the survivors were taken on board the Bear—Long, Elison, and Fredericks. The four other survivors and all the dead bodies were taken on board the Thetis. Six of the bodies were transferred to the Bear next day. So you see both vessels were present at the rescue, and Brainard was right in denying that he was taken aboard the Bear. There have been lots of mistakes published in this connection, but I have given you the correct story, as you will see when Captain Schley's report is made public."

The report of Commodore Winfield Scott Schley of the expedition under his command for the relief of the Greely party was submitted to the Secretary of the Navy during the latter part of the month of October, 1884. It cites the orders under which the expedition was organized, and then enters upon a graphic narrative of the events of the voyage.

Early on the morning of June 7th the ships Thetis and Bear reached Littell Island, which locality Commodore Schley terms a desired outpost for advance to the more perilous dangers of Melville Bay. Violent gales, snow-storms, and dense fog now prevailed, delaying farther progress; but on the morning of June 11th, when open water had been observed through rifts in the fog to the northwest, the lines were cast off and the voyage was resumed.

The usual perils of Arctic navigation were experienced upon the northward journey from this point. Constant and anxious watch was kept for opportunities to make headway. Mile by mile a way was forced around obstructions and through dangerous and tortuous leads until, on the morning of June 18th, the neighborhood of Cape York was reached. Here communication was opened with the natives, but no tidings of Greely's party could be obtained. Littleton Island was reached on the 21st of June, up to which time nothing had been heard of the objects of the search. The passage across to Payer Harbor was made on the afternoon of the 22d, during a heavy gale, and the vessels were moved to the ice foot with ice anchors. Parties were started at once to visit the cairns and caches at this point, in order that no opportunity should be lost to push northward, if no tidings of Greely were to be found. Some cheers were heard above the roaring winds by those on shipboard, but could not be located accurately. In a few minutes Seaman Yewell made

his appearance, almost out of breath, and reported that Greely and his party were at Cape Sabine. He brought and delivered to Commodore Schley records found by Lieutenant Taunt in a cairn on Brevoort Island. The records had been chiefly prepared by Lieutenant Greely in person, and were found to bear dates of eight and nine months previous. The latest paper, written Sunday, October 21st, 1883, was as follows:

"My party is now permanently in camp on the west side of a small neck of land which connects the wreck Cache Cove or Bay, and the one to its west. Distant about equally from Cape Sabine and Cocked Hat Island. All well."

Shortly after Yewell's arrival, Ensign Harlow signalled from Stalknecht Island: "Send five men. I have found all Greely's records, instruments, etc."

Lieutenant Colwell was now instructed to proceed to the wreck Camp Cache, and if one of the party were alive, to inform them that their relief was at hand. Commodore Schley followed in the Bear, leaving the Thetis, with instructions to pick up the remaining searching parties, and then follow the Bear.

As the steam-cutter reached the wreck Camp Cache, Lieutenant Colwell and ice-masters Ash and Norman discovered Sergeant Long reclining on the rocks. Taking him into the cutter, and learning from him the location of the camp, they went to it and announced to Lieutenant Greely the coming of relief. Ice-master Norman returned to the steamer cutter from the camp, and took Long off at once to the Bear. Long was too weak to get on board himself, and was carried up the side by the crew and placed on a chair in the saloon. Full particulars having been learned from him, in a few moments Commodore Schley, with Lieutenant Emory, Ensign Reynolds, Dr. Ames, and several of the crew of the Bear, went ashore, and reached Greely's camp about 9 P. M. Lieutenant Colwell now reported that he found the tent covering partly blown down upon them, and that he had partially raised it with the assistance of Ash and Norman, and had given the survivors some milk and beef extract.

Signal was made to the Thetis to send more officers and men with Ensign Harlow, and the photographic instruments; also to send clothing, blankets, and stretchers. To this signal Chief Engineer Melville, Dr. Green, Lieutenant Tarrent, Lieu-

tenant Lemley, and Ensign Harlow, of the *Thetis*, and Lieutenant Usher, of the *Bear*, responded. These officers were assigned various duties in connection with the removal of the living and the dead, their effects, etc. The doctors were left to administer stimulants to Lieutenant Greely, Sergeant Ellison, Sergeant Brainard, Hospital Steward Biederbeck, Sergeant Fredericks, and Private Connell, who were found alive in this wretched tent. Ensign Harlow photographed the tent, the burying-ground on the ridge, and the ice foot near by. The camp was located nearly midway between Cocked Hat Island and Cape Sabine. It was about seventy-five feet from the beach, on a slight elevation, and protected by high mountains to the southward. All the survivors except Long were found in the tent, but Brainard, Biederbeck, and Fredericks subsequently emerged and insisted that they were strong enough to walk to the boat. It required but a short time to demonstrate their mistake, and they, with the others, were carried upon stretchers.

By 11 P. M. the survivors were so far strengthened by stimulants that all were removed to the ships—Lieutenant Greely, Sergeant Brainard, Hospital Steward Biederbeck, and Private Connell to the *Thetis*; Sergeants Fredericks and Ellison to the *Bear*. The gale which had blown all day increased to a hurricane during the night. Work with boats, therefore, was both difficult and dangerous. With much difficulty the ships were kept head to the wind. The frequent squalls often drove them off broadside too, and while in such position, without sail, their rails would be driven almost into the water. Although the shore was distant at times hardly one hundred feet, the boats would nearly swamp in traversing that short distance. The work of exhuming the bodies of the dead for transportation to the United States was carried on under the orders of Lieutenant Emory, and so energetically and promptly performed that the ships were able to start for Payer Harbor at four o'clock on the morning of June 23d.

Commodore Schley describes as follows the impressive scene inside Greely's tent:

"Lieutenant Greely was found in his sleeping-bag, his body inclined forward and head resting upon his left hand. The Book of Common Prayer was open and held in his right hand. He appeared to be reading prayers to Private Connell, whose condition was most desperate and critical. He

was cold to the waist, all sensations of hunger gone, was speechless and almost breathless; his eyes were fixed and glassy; indeed, his weakness was such that it was with difficulty he swallowed the stimulants given him by Drs. Green, and Ames; his jaws had dropped, his heart was barely pulsating, and his body temperature very low.

"This tender scene of a helpless, almost famished officer consoling a dying companion was in itself one that brought tears to the eyes of the strongest and stoutest of those who stood about them on the merciful errand of relief. Sergeants Brainard and Fredericks, and Hospital Steward Biederbeck were extremely weak and hardly able to stand; they were no longer able to venture away from their camp to seek food nor to prepare their simple diet of boiled seal-skin, nor to collect lichens, nor to catch shrimps, upon which they had to depend to a great extent to sustain life. Their faces, hands and limbs were swollen to such an extent that they could not be recognized. This indicated that the entire party had but a short lease of life, probably not more than forty-eight hours at the most. This fact was recognized by them all, and had come to them from their experience during that long and desolate winter in watching their dying companions, as one after another passed away from amongst them forever.

"Poor Sergeant Elison was found in his sleeping-bag, where he had lain helpless and hopeless for months, with hands and feet frozen off. Strapped to one of the stumps was found a spoon which some companion had secured there to enable him to feed himself. His physical condition otherwise appeared to be the best of any of the survivors, and this may be attributed to the fact that each of his companions had doled out to him from their small allowance of food something to help him, on account of his complete helplessness to add anything to his own by hunting about the rocks for lichens or catching shrimps. He suffered no waste of strength by exertion incident thereto. This care of Elison was such as only brave and generous men, suffering with each other under the most desperate circumstances, could think of.

"Sergeant Long was very much reduced, though in somewhat better condition than some of the others. His office of hunter for the starving party had made it necessary to increase slightly his pittance of food to maintain his strength,

that he might continue the battle for food and life to the helpless. In this case, however, the effect of this continued effort had told its story in his wasted form. Shorter and shorter journeys were made in good weather, while in the frequent bad weather of that region his strength was so much impaired, that when the joyful signal was heard, he had only enough left to stagger out to the rocks overlooking the water to see if the signal heard had proceeded from ships in sight. His first visit was a bitter disappointment, as he saw nothing. A second visit, fifteen minutes later, brought him within fifty yards of the Bear's steam-cutter, and in view of the relief-ships coming around Cape Sabine. When the steam-cutter ran into the beach where Long was seen, he rolled down the ice-covered cliffs and was taken into the cutter. He informed Lieutenant Colwell that the location of the camp was just over the cliff. In the case of Sergeant Elison, the medical officers were fearful from the first that his chances of life were very small. As soon as healthful food was available, and the digestive functions should be re-established fully, the healthful round of blood circulation would begin its distribution of new life to the injured parts, and inflammation would naturally occur. If Elison's strength should increase more rapidly than the inflammation, the amputation of the injured parts would perhaps save his life. Several days after his rescue, June 28th, Dr. Green reported that Elison was threatened with congestion of the brain. The symptoms increased rapidly until the poor fellow lost his reason.

"At Godhavn his condition was so critical that the surgeon of the expedition, after consultation, determined to amputate both feet above the ankle, as the only chance of life left the sufferer. Disease, however, triumphed, and amid the bleak scenes that had surrounded him for three years, in his heroic sacrifice, and within the desolate solitude of that region of everlasting ice and snow, surrounded by his sorrowing comrades, he passed away about 3 A. M. of July 7th, three days after the amputation.

"Lieutenant Greely was physically the weakest but mentally the most vigorous of his party. He had lain in his sleeping-bag for weeks on account of his gradually failing strength. He was unable to stand alone for any length of time, and was almost helpless except in a sitting posture; all pangs of hunger had ceased; his appearance was wild; his hair was

long and unkempt; his face and hands were covered with sooty black dirt; his body was scantily covered with worn-out clothes; his form was wasted; his joints were swollen and his eyes were sunken.

"The first inquiry was if they were not Englishmen, but when he was told that we were his own countrymen, he paused for a moment as if reflecting, then said: 'And I am glad to see you.'

"The condition of his camp was in keeping with the scene inside the tent, desperate and desolate; the bleak bareness of the spot, over which the Arctic bird would not fly; the row of graves on a little ridge, 100 feet away, with the protruding heads and feet of those lately buried, a sad but silent witness to the daily increasing weakness of the little band of survivors; the deserted winter-quarters in the hollow below, with its broken wall, invaded by the water from the melting snow and ice above it; the dead bodies of two companions stretched on the ice foot that remained; the wretched apology for cooking utensils, improvised by them in their sore distress, hardly deserving the name; the scattered and worn-out clothes and sleeping-bags of the dead; the absence of all food save a few drops of boiled sealskin scraps; the wild and weird scene of snow, ice and glaciers overlooking and overhanging this desolate camp, completed a picture as startling as it was impressive. I hope never again in my life to look upon such wretchedness and such destitution. The picture was more startling and more deeply pathetic than I had ever dreamed could be possible. In beholding it I stood for a moment almost unmanned, and then realized that if the expedition had demonstrated any one thing more than another, it was that an hour had its value to at least one of the party. Stouter hearts than mine felt full of sorrow. Eyes that had not wept for years were moistened with tears in the solemnity of that precious hour in the lives of that heroic little band of sufferers, until this moment so hopeless and helpless.

"The dead were buried on a ridge back of the camp, distant from it about forty yards. The bodies of Privates Henry and Schneider were found on the ice-foot west of the camp, distant fifty yards. In exhuming these bodies, one at a time was taken up and wrapped in blankets. Tickets or tags of canvas were sewed to them, marked in the order of exhuming them, 1, 2, 3, etc.

"Lieutenant Emory drew a plot of this burying-ground, with the numbers of the graves marked in order of exhuming. The plot was subsequently submitted to Sergeant Brainard, who had superintended the burials. The names of the dead bodies according to the number were marked on them. Their identity was complete. The bodies were all carefully wrapped up and stowed in one of the dories on board the Thetis. They were then covered with ice and guarded until tanks could be prepared to hold alcohol. This was done three days afterward, when six of the bodies were transferred to the Bear. All the bodies were then placed in alcohol in the tanks and carried to St. John's, N. F.

"At 11 A. M., June 23d, Lieutenant Emory, with the Bear, was sent back to the wreck to make another search of the locality more extended than that of the preceding day, and to include the coast from the ice limit, half a mile west of the camp, up to Cape Sabine. This search lasted several hours, but added nothing to that made the previous day. At 5 P. M. the Bear returned to Payer Harbor, having barely escaped the crush of ice against the land in the vicinity of Cape Sabine. At 6 P. M., June 23d, both ships sailed from Payer Harbor to Littleton Island, which point they reached at 9.30 P. M.

"The preparation of the bodies of the dead for alcohol and their condition is referred to as follows: The tanks having been prepared by June 25th, the bodies of the dead were transferred to them. Dr. Green, Chief Engineer Melville and Ensign Harlow, of the Thetis; Dr. Ames, Lieutenant Crosby and Lieutenant Colwell, of the Bear, prepared the bodies in the following manner: From each body the clothing was removed. It was then wrapped in strips of cotton cloth from head to foot backwards and forwards several times. Cotton sheeting was then used to cover the whole, cut to fit the form of the body. Wrapped in this way the body was placed in the tanks and secured against movements from ramming ice, or when rolling in the passage after leaving the ice. This arrangement was temporary, and would not answer when making the passage beyond St. John's.

"In preparing the bodies of the dead for transportation in alcohol to St. John's it was found that six of them, Lieutenant Kislingbury, Sergeants Jewell and Ralston, Privates Whistler, Henry and Ellis, had been cut, and the fleshy parts removed to a greater or less extent. All the other bodies were found

intact. When the bodies of the dead were exposed in preparing them, the identification was found to be complete. Some of them could be recognized by aid of a picture taken with us from home. Others whose features had decayed were identified by other characteristics. I am therefore satisfied that no mistake was made in this important matter, which so impressed us from the beginning."

Commodore Schley then recites incidents of the return to St. John's. Records were deposited in the Nares cairn for Commander Coffin, informing him of the result of the expedition, and ordering him to Upernavik, or Disko, where the Thetis and Bear were to await his arrival. The return trip was made amid much danger, the ships often being much exposed and encountering heavy flocs of ice. At a point near Wolstenhome Island the rescuing party fell in with the Dundee whalers, and announced to most of them the news of the rescue of Lieutenant Greely and six of the Lady Franklin Bay Expedition. This was done in order that they might not continue on into the dangers of Smith Sound, or be led farther north if they had so intended, in view of the reward offered by Congress for the rescue of the Greely party.

"In connection with these splendid sailors of the Dundee fleet," Commodore Schley says, "I would state to the department that they were most cordial to me during the interval of time when the ice conditions of Melville Bay kept us together. From them a vast amount of useful information touching the navigation of this region was obtained, which aided me greatly and increased my confidence so much in pushing my expedition into the ports of Melville Bay, at that early period of a very close and unfavorable season. Both at Disko and Upernavik the governors informed me that the season was the closest and severest for thirty years. In their behalf I am glad to say that their appreciation of the situation of Lieutenant Greely and his party in the desolate waste of the dismal Arctic regions inspired them, as it did us, with a determination to assume any risk necessary to reach the imperilled party. If my ships had met with accident some of these noble men would have reached Greely, though, as the sequel has demonstrated, too late to have saved the lives of the few survivors I had the good fortune to reach in time."

Commodore Schley continues:

"From the time of entering, May 19th, until we left the ice, there was not a moment when the ships were out of danger. The most unceasing vigilance was necessary to prevent damage or to take advantage of opening leads to advance. Much of my time, as well as that of the energetic commanders of the other ships, was spent in the Crow's Nest; in many instances we passed sixteen to twenty hours in them, on the lookout or in navigating leads. The anxiety and great responsibility of this period cannot be understood properly without experience in these dangerous regions. Often the labor would almost break us down; but it was never forgotten that Greely and his party were in peril. The confidence of our countrymen, the remembrance of their God-speed, and the interest you took in the expedition, encouraged us when difficulties increased. The struggle with ice was constant and furious for 1,300 miles, to reach and rescue the survivors of the Lady Franklin Bay Expedition, and to bring them home. After passing Waigat Straits the winds, which had been northerly, hauled to southwest, and increased on July 4th to a moderate gale, with snow during most of the day. . . .

"During our stay in Greenland we were assisted in every way by the inspector of North Greenland and the governors of Godhavn, Upernavik and Tassuisak. These gentlemen were unremitting in their politeness and assistance to the expedition."

Referring to the cost of the expedition, Commodore Schley says the total expense will aggregate about \$750,000. A considerable portion of this sum was for the purchase of the ships, which were returned in good condition. Their value, together with that of the returned stores and outfits in all departments, when disposed of, either by sale or transfer to the general service, will greatly reduce this amount. During the cruise of the ships on the coast of Greenland, Lieutenants Debre, Crosley and Badger, who were the executive officers of the three ships, doing duty as navigating officers in addition thereto, ascertained that the English Admiralty charts of that coast were deficient in a number of particulars. Whenever opportunity offered advantage was taken by these officers to increase the accuracy of navigating this region. Commodore Schley highly commends Commander Coffin, and says his duties were executed with judgment and skill. Of Lieutenant Emory he says: "Lieutenant W. H. Emory, com-

manding the Bear, was under my immediate observation during most of the cruise. It affords me the greatest pleasure to testify to the promptness, energy, and skillfulness of this meritorious officer; his coolness and good judgment were valuable to me. On no occasion was it necessary to either prompt or order him to discharge duty. He was always on the watch, with the keenest appreciation of the situation, in anticipating all my wishes. I would commend him specially to the Department as an officer of high professional merit and competency, and would frankly state that much of the success of the expedition is due to him and his ably-officered ship."

Commodore Schley also commends the other officials of the various ships, and says the selection of the crews of the three vessels was faultless. There were no punishments on board the ships until the return to civilization, and the few cases then were caused entirely by rum. The report concludes: "If not a breach of official etiquette, I would state that our success in the work which we had the honor to accomplish was made possible, first, by the munificent appropriation of Congress; second, by the unceasing energy of yourself and the Secretary of War; your masterly comprehension of the problems to be solved by the expedition; your indefatigable activity in fitting it for its work, and your unflagging interest in preparing everything which concerned its success. This spirit was caught up by the officers and men you honored, and was the main spring of their action when absent. Much of the success of the expedition was due to you, and when I say this I only convey to you the sentiment of all who served with me in the difficult, dangerous, and honorable duty which you intrusted to our charge."

General Hazen, the Chief Signal Officer, has also sent in his annual report to the Secretary of War. Speaking of the Arctic relief expeditions he says, among other things, referring to the departure of the Yantic, after the loss of the Proteus, from Littleton Island to St. John's without leaving provisions, that this abandonment of Lieutenant Greely and his party to probable starvation by the officers whose only mission in those waters was to succor them, displayed a lamentable disregard of grave responsibilities. He holds that if Lieutenant Garlington had insisted upon leaving rations from the Yantic, or if another relief vessel had been sent from St.

John's, as he says he himself urged, loss of life and disaster would have been averted. General Hazen says Lieutenant Greely carried out his instructions literally, and the Signal Bureau carried out the prearranged plan. He continues, after referring to Lieutenant Greely's retreat to Cape Sabine, and to the success of the relief expedition under Commander Schley, as follows:

"Up to the return of the expedition this year I had hoped there would be no occasion for raising the question of blame at this or any future time. But new light has been cast upon the subject, and with it my duty becomes plain, and the truth of history and justice to all call for such impartial inquiry and authoritative judgment as a tribunal broad enough to embrace the whole question shall institute and pronounce, and the Congress of the United States is manifestly such a tribunal. . . . I therefore trust that this whole matter of the Lady Franklin Bay expedition, and the expeditions organized for its relief, will be deemed worthy of a thorough investigation by Congress."

General Hazen regards the Greely expedition as "among the foremost of its kind," and insists that "both Lieutenant Greely in the Arctic and the Signal Bureau in Washington carried out their parts of the prearranged plan of rescue literally and successfully in every particular."

CHAPTER XXX.

FUTURE EXPEDITIONS.

How Lieutenant Lockwood and Lieutenant Greely Spent Christmas in the Arctic Region—

Extracts from the Diary of the Former Officer, who Lost his Life Among the Icebergs of Cape Sabine—The Sufferings of Holiday Week—The Fiend of Hunger—New Year, 1884—A Christmas in Grinnell Land as Described by Lieutenant Greely—The Work Done by Greely—Lockwood Sees Cape Robert Lincoln, the Highest Northern Latitude Ever Seen by Man—The Secretary of War on the Result of the Expedition—Future Expeditions to the Pole—Lieutenant Greely Says that the Best Route is Via Franz Josef Land—When to Start—How the Crew should be Selected and Equipped.

THE story of that Christmas day, 1883, at Cape Sabine, of Greely and his men, is by far the most pathetic and pitiful that the world has ever read, yet in the lines written by one brave man there is no word of complaint from his brave soul.

Lockwood, the noble gentleman, the brave man, the gallant soldier, and the true heart, wrote of that time to tell how brave men look calmly into the grave and grasp hands with death, no matter how horrible his shape may be, and lay down to eternal sleep.

In October Major Greely and his comrades reached Cape Sabine in their southward search for succor, and on the 20th of the month occupied the hut of snow and ice that formed the last home on earth of some of the party. Very soon the scant food remaining to them became so much reduced that the daily story, written alike by the rescued and the dead, was of the dread battle with the fiend of hunger.

Lieutenant Lockwood wrote all of his daily histories in "short-hand," and his diaries transcribed are probably the most voluminous of all, making many volumes of manuscript. In these daily writings he formally notes the temperature, and the constant record of 33° or 34° tells of the suffering by cold, even were there no words to tell of frozen hands and feet, or of sleepless nights.

As the rations grew smaller, the record tells of how the

thought of all turned on the good things "at home" to eat and drink. Even while writing of some event, a gap will come, such as "Memorandum—cranberry jelly," and the narrative goes on.

Officers and men join in talk of "home" and "America," and of the sweets of life and food there, and gleefully plan grand feasts, set dinners, and exchange hospitalities. Lockwood says: "Brainard is to come to supper at my home on reaching Washington, and I have promised him Cully lun, stewed oysters, smorgase, and preserved strawberries with cake. After supper a smoke, and then wine and cake, and some singing by Mary Murray (the home name of a sister). I have invited Fredericks and Long to come to the house and eat some preserved strawberries and black cake. The other mess had a growl to-night about their soup; 'got it cold,' they said."

In the long months of night, and the bitter cold and storm and starvation, the days and even the hours were counted. He says: "We count the days from one Sunday to another, and to solstice and Christmas." The winter solstice marked to these the passage of half the tedious night, and the return of the sun meant the loosening of the mighty bonds of surrounding ice and probable rescue. They, too, looked forward to Christmas, and in a small way, pitifully small, a commemoration of the day. December 18 Lockwood thinks of a new dish for a Christmas dinner dessert—"oranges and pineapple cut up together, and eaten with grated cocoanut," and then says: "My mind dwells constantly on my childhood's home. Oh, my dear home, and the dear ones there! Can it be possible I shall some day see them again, and that these days of misery will pass away? My dear father; is he still alive? My dear mother and sisters, Harry, and my nieces and brothers-in-law; how often I think of them."

December 21.—After a burst of joy at reaching "the top of the hill," and the turning southward of the earth to find the long absent sun, he tells that: "By a great effort was able to save one ounce of my bread and about two ounces of butter for Christmas. I shall make a vigorous effort to abstain from eating it before then." Think of that! A "vigorous effort" to keep from eating an ounce of bread. And he "put it in charge of Biederbeck as an additional safeguard." Shooting a fox that same day made "an extra one for Christmas."

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December 22.—“We look forward to to-morrow and Christmas,” and “I offered to give any one a roast turkey on reaching home for a single dog-biscuit now, but found no takers.” The next day, “I saved nearly all my hard bread for Christmas, though I need it sorely.” It was a wretched day, and he and others were very weak, and he hopes “Christmas will be better than to-day,” and to make his dinner grander he made a tremendous effort and went without his rum, “in order to have it for Christmas” to add to the punch.

Christmas eve came, and he added to his scanty savings for the next day's feast half of his bread and his piece of lemon. Ah! Christmas eve had greater power there than even here in warm homes, by well-spread boards, to turn the thoughts to the absent ones. The devoted and faithful son and loving brother wrote: “To-night is Christmas eve, and my thoughts are turned toward home. God preserve me to see this day next year, and enjoy it home with those I love. To-morrow is to be pretty much a repetition of Thanksgiving. I have saved up my bread and rum. I think of the children at home; the Christmas-tree to-night, and the toys c. But my fingers are too cold to write more.”

At last comes the Christmas all have looked forward to for so long, and the diary tells this story: “December 25. Barometer, 29.93; thermometer, 35.5. Christmas. We have all been talking and waiting anxiously for the hour, and now it is here and (5 P. M.) nearly gone.

“Breakfast consisted of thin soup of peas and carrots, with a little blubber and some spoonfuls of potatoes. This we had at six o'clock. Cloudberries served out (two cans to each mess).

“At 1 P. M. Long lighted up for the event of the day—dinner. Dinner consisted of a fine, rich stew of all seal meat, with onions, a little blubber, potatoes, and bread crumbs. After this we had, in the course of an hour or so, a fine, nice stew, with raisins, and a little blubber and milk.

“These were pretty much the same as Thanksgiving, but the cooks made a great deal on that day, and the meals seemed better. The cooks are now preparing some fine chocolate, and that will be followed by a punch of one gill of rum to each man.

“The party have been in fine spirits to-day. Cheers were given after breakfast for Lieutenant Greely, Corporal Elison,

Rice, and the two cooks. It was agreed that we should give each of the two Esquimaux fifty cents from each member of the expedition, to be kept for them for next Christmas."

"Yesterday has passed," he writes the next afternoon, "but I find my notes of yesterday very imperfect. The day was a great success. We all had enough, or nearly enough. I had eight ounces extra which I had saved up, one ounce of butter besides, and the rum of the Sunday before.

"It was agreed early in the morning that nothing should be said to mar the pleasures of the day. Many kindly thoughts were expressed for those at home, and oh! how often we spoke of what was going on at our several homes.

"Many of the party gave the bill of fare at their homes. Of course, I did not forget to mention roast turkey, cranberries, and mince pie.

"Reminiscences of home, invitations to future Christmases, arrangements for future Christmas meetings, paleocrystic, and to the Ann Arbor hotel. The reading of the record. Some songs in all languages, including French, German, Danish, and Inuit. The birthday bills of fare were read by me: Six pounds rice, three pounds milk, two pounds coffee, two and a quarter chocolate, five pounds raisins, twelve and a half lemons, twelve and a half pounds bread, six and a half pounds bread toast, two pounds lard, three pounds blubber, eight pounds cloudberry, one pound sugar, twenty-five ounces carrots, fifty ounces peas in the stews, six ounces extract of beef, twelve to fourteen ounces seal meat, four ounces rum to each man—somewhere about thirty-six ounces of solid food to each man.

"The supply in the morning was pretty much the same as usual, but the seal stew was voted by all as delicious and extremely satisfactory. The rice was the same, and many were the praises given to each. The punch was extremely fine. Chocolate about seven o'clock, and by this time most of us were too full for utterance, and the conversation gradually slackened off, and, with the songs, the day ended.

"To-day we have all been feeling extremely well all day—nice and warm, and comfortable in the extreme. Some of us ate too much yesterday, but only so much as to feel a little uncomfortable at times, but we all slept well.

"The cooking was a great ordeal to the cooks on account of the smoke, there being very little wind, but the cooks were

given an extra half gill of rum. They did nobly. Bender relieved Fredericks to-day, his eyes hurting him a good deal.

"Our talk this morning was of home and our families. Dr. Pavy, Rice, Israel, Brainard, and others expressed themselves as having conceived a very high idea of my father, from what they had heard from Lieutenant Greely and from me. I have invited them to come to the house particularly. I have extended a general invitation to all the members of the expedition. I spoke this morning of the reunions of my family, and how enjoyable they are. My remarks about my father brought tears—the first time I have shed tears since I have been in this country; if I except the occasion at Esquimaux Point when Rice returned with the records—the only time I spoke also of my sisters, and of Mary Murray, whose many virtues I highly eulogized.

"Kislingbury was kind enough to make for each of the party a cigarette. Many of us are now out of tobacco entirely."

Could so terrible a story of suffering and privation be told more graphically? And who to-day will not offer a pitying prayer for the brave, good soldier and son and his comrades, who laid down their lives so uncomplainingly?

December 26.—The diary of Lockwood reads of Christmas week: "To-day, thermometer, 34.8°. We have all been feeling extremely well to-day; nice and warm and comfortable in the extreme. Some of us ate too much yesterday, but we all slept well. Breakfast this morning was late, consisting of a soup made of seal-blubber, which was very good. I did not feel very hunger. Supper of English beef, etc. I had a few bread crumbs, salt water, and 'gunpowder,' which Long warmed over the lamp. We spoke a good deal to-day of the prospects of getting across the straits in the spring; of Rice's preliminary trip; of the chances of finding food there, etc. The day has been calm. We count on 240 rations as certain. A fox has been seen around to-day, but our efforts to shoot him were not successful so far. The talk this evening is all about food, dessert, etc.

"December 28.—Thermometer 29.5°, calm and clear. I exchanged places with Whistler during the forenoon, he occupying my bag and I his. Had very cold, numb hands all the forenoon, but now the circulation seems to have come

back, though it has run out of one of my feet. The coldness of the extremities is due evidently to the short rations, and shows how food is fuel in this country. Kentucky spoken of this morning. Jewell made some remarks in connection with horse-breeding in the State.

"Last night Gardiner commenced a book on American shipping, found in the cache here. We gleaned from this that the navy board ordered before we left recommended the establishment of a formidable navy, and that the President brought the same and the subject of American shipping before Congress. It is singular how we thus pick up little strips of information. Rice read some of McCarthy's History of Modern Times, and thus the evening was prolonged until 9.30 P. M.

"I have amended my lunch with Lieutenant Greely. He is to send to California for the recipe of the Chinese way of making curry and rice with chicken. This is to be substituted for the tenderloin steak. With Cross I am to eat Welsh rare-bit, black cake, and egg-nog. I am to take to his house the cake: he furnishes the other articles.

"The record of the 28th and 29th covers about the same ground. There was intense cold, and the principal thing of interest was an order of Lieutenant Greely to make an experiment of using seal-blubber for fuel.

"December 30.—Thermometer 21°. Last night marketing was continued late into the night, and much impatience was expressed for this morning with its son-of-a-gun (a bread stew). Snyder, with some one else, struck up a bargain at three o'clock this morning.

"I save to-day's rum for to-morrow night, when I shall probably remain up to see the old year out. The son-of-a-gun this morning was particularly fine, and the stew this evening equally so.

"Very little conversation, and but little to-day, on the subject of eating. Full meals seem to have the effect of inducing silence, the party lying down and enjoying comfortable repose. It is singular how warm and comfortable a good meal makes one. Came on blowing to-day about noon, and a storm is now raging from the east. The rope makes lots of smoke, but it is owing a good deal to the heat and the time occupied in cooking. This morning the smoke was dense and blinding. This evening was much better on account of the

wind. I am suffering with my eyes, which seem to have been affected by the smoke.

"Memorandum.—Cracked wheat with honey and milk.

"December 31.—Thermometer 21°. Thermometer yesterday morning at ten o'clock inside the house 24°. Storm raging all last night and all day to-day from the east. This evening it seems to have stopped.

"About ten A. M. it was discovered that the water-hole was frozen up, and a new hole nearer the shore was commenced. We worked at the new hole from this time until 4.15 P. M., when Brainard succeeded in striking water. It was very severe work. The wind blew in gusts very hard. All the well ones went out except Lieutenant Greely. Those who did not go out were Lieutenant Greely, Elison, Jewell, Gardiner, Henry, the doctor, Biederbeck, Cross, Bender, Whistler, and the two Esquimaux; also the two cooks. The two cooks and the Esquimaux, and the doctor and Biederbeck, do not take part in keeping open the water-hole. Whistler was occupied in cutting up the wood.

"This evening was fixed upon for trying the blubber to cook by, but it has been postponed. The water used by the doctor for dressing frost-bites has been warmed up to-day for the first time over the blubber-lamp. This might have been done right along. Instead, about three ounces of alcohol each day have been used.

"Breakfast this morning consisted of ox-tail soup, and supper of English meat. My rum issued yesterday I will drink to-night, as I want to set up and see the old year out. Supper was delayed until about five o'clock by the work on the water-hole. We all got cold feet by going out. My own became painfully cold, and we are still very cold. It is discomfort in the extreme.

"How glad we all are that the end of the year has been reached again, can hardly be explained. Rice expects to start across about the end of January. We had to cut down through about four feet of ice to reach water.

"Tuesday, January 1, 1884.—Day passed in bag. Lieutenant Greely came over and paid me a visit shortly after breakfast. He told me that the doctor had made overtures to make allowance (offensive remark made some time ago), but that he had declined. He told me also that some time ago he felt certain that the doctor was eating during the night

Corporal Elison's allowance of bread. Was within two and a half feet of the doctor at the time, and would swear to the fact before a court. He thought it right to mention the fact to Brainard, but had said nothing to any one else about it. But this, as well as former matters, he should make the subject of report to the proper authorities on his return, to act upon as they chose.

"He told me that Elison's hands and feet were suppurating fast, and that the line of demarcation was becoming clearer; that amputation would evidently have to be performed, but that nothing would be attempted here, but at Littleton Island. All this seems to have been gained mostly or altogether from Biederbeck.

"He told me that he would do all in his power to aid me in getting a staff appointment on my return; that if I desired I could have three or four weeks on my return, nominally on duty, but with little or nothing to do, particularly at the signal office, and that if I desired there would be no trouble in getting three or four months' leave of absence.

"Salor went out to-day and cut out the water-hole without trouble. I ate to-day a good breakfast of rice and tomatoes, with some bread. At noon I ate three dog-biscuits with butter, and a little latter we had cloudberry and rum and lemon. Supper consisted of fine seal-meat stew. While eating I had the misfortune to spill my bread, and, in picking it up, spilled the last drop of my tea. Very kindly Lieutenant Greely, Long, and Biederbeck gave me a little, so the cupful was almost regained. Before I got my stew Snyder offered me seven dog-biscuits, and next Sunday's scanty addition of the son-of-a-gun for my stew this evening, but afterward changed his mind. When Ellis perceived I had spilled my tea he offered to trade me half a cupful, but as he took advantage of my misfortune, I declined.

"We have all been feeling remarkably high spirited to-day on the coming of the New Year, and this evening all seem hopeful. We now speak frequently of going home this year. We are all in high hopes. I go over this evening and take Jewell's place in Lieutenant Greely's bag, with the latter and Israel. The condition of the party is far superior to anything I expected, and the future bids well to come out all right.

"How my thoughts wander homeward to the dear ones there! Are they thinking of me?"

Lieutenant Greely, in the course of conversation, describes a Polar Christmas (1882) in Grinnell Land as follows:

"It was Christmas Eve in Grinnell Land as in all the world beside. The temperature was moderate for the season, ranging from twenty-five to thirty degrees below the zero of Fahrenheit. For two days, however, a severe storm of high wind and drifting snow had prevailed, rendering our usual out-of-door exercise difficult and dangerous. For seventy days the cheerless gloom and darkness of the long Arctic night had been upon us, leaving their impress in the shape of failing appetites, fading color, and depressed spirits. Now more than ever came to our minds a sense of isolation and a remembrance of that world from which we were separated by long and dreary expanses of ice and snow.

"Would storm and wind allay and give us a bright Christmas? This was the question which disturbed our minds. At noon, to our delight, the wind fell, and a few hours later the snowy clouds vanished as if by magic, and once again the starry beauties of the Polar heaven shone forth in all their glory. This sudden change spoke well for the morrow, and gave new vigor to Sergeants Rice and Brainard, who had set their hearts upon a fitting celebration of the coming day. They asked the use of all flags, banners, and other decorative articles, intimating at the same time that my absence from the men's quarters until six p. m. was desirable. At that hour the results of their work stood disclosed. The bright flags, neat banners, and gay guidons were tastefully arranged, and presented a marked and delightful contrast to the smoke-begrimed walls and ceiling. In the most prominent place was hung an afghan, whose alternations of snowy whiteness and crimson color were broken by various devices in delicate needle-work. Its golden anchor of hope, its silver horse-shoe of luck, its white lilies of purity, its sweet violets of remembrance, its polar star and its cross of faith, were to us all emblems ever dear. Wrought by loving hands in other climes, its first usefulness served to cheer and brighten our lonely Arctic quarters on this Christmas Eve.

"Our stock of presents was not large. The greater part of them had been contributed through the kindness of a lady in New York city, who, although unacquainted with any member of the expedition, had, with considerate thoughtfulness, forwarded some little gift for each one of the party. The pres-

ent for Lieutenant Kislingbury, when opened, caused considerable merriment, it being a little wooden dog. It elicited from the lieutenant a question to Private Schneider, which has been often heard in lower latitudes: 'Ah, Schneider, don't you want to buy a dog?' The appropriateness of the remark lay in the fact that Schneider had devoted himself to the Esquimaux puppies, and was then caring especially for two litters of them. The officers' mess was the recipient of an excellent imitation of an Irish potato. The commanding officer received a fan, which was hardly needed to recall the climes for which it was made. The presents for the men nearly always included pipes or tobacco, with the addition of books, slates, pencils, wristlets, etc. Sergeant Rice thought it an adverse fate which sent to him, a non-smoker, a pouch filled with a goodly quantity of the weed. Sergeant Gardiner was greatly delighted and surprised by receiving from his sister a comforter knit by her hands.

"The gifts from the commanding officer were now in order. Twenty-four cans of uniform size, numbered from one upwards, were set out on the table and disposed of by chance. The highest throw had first choice and selected a number which entitled him to the corresponding can. As with Portia's sealed caskets, the privilege of external examination was granted, and as in that case where weighty gold and shining silver lost the prize, so here the heavier and more attractive cans were not always the most valuable. In general the heavier cans were filled with beans, nuts or rice, while the lighter contained orders for confections, fruits, rum, etc. One fortunate individual, Sergeant Gardiner, drew an order for a ton of ice—a second, an order 'good for nothing,' and a third, a ticket 'good for a passage to St. John's by the first steamer.' As transpired two years later, Gardiner—poor fellow—had it in mind to turn the joke upon me and pay me off in my own coin. On one of the bright days that came to us in the spring-time at Sabine—for, even amidst all our sufferings and terrible privations, our spirits never entirely failed us, and some days were bright and cheerful to us—he opened his wallet and said:

"'I have here, Major, a paper that may interest you. I had intended to present it to you to be honored on our arrival at home, but, as that may never be, I would like you to read it now.'

"It was my order for a ton of ice.

"While the rattling was in progress, skillful hands had been busy preparing our Christmas cup, a delicious egg-nog delicious to us even though the milk and eggs used in compounding it were from the can and not freshly from the farm. The merriment of the evening, as was natural and appropriate, burst forth in song. Plantation melodies, comic songs and sentimental ditties were rendered, giving way, as midnight approached, to sacred hymns and those beautiful and tender Christmas carols which have come down to us from the middle ages. Thus with songs of praise was ushered in that Christmas morn in our lonely home in the weird and frozen Northland.

"At six o'clock on Christmas day the thermometer registered forty degrees below zero, but calm weather and a clear sky insured a delightful day, as Arctic days go at that season of the year. Our breakfast came, as usual, at half-past seven. At ten o'clock the men assembled for the customary Sabbath service. The selection of Psalm for Christmas day was read, as well as the 130th and 140th Psalms. Situated as we were upon the verge of the world, and living in the great shadow of that Arctic night, to us all came more touchingly and forcibly than ever the truth of those beautiful words:

"If I take the wings of the morning, and remain in the uttermost parts of the sea;

"If I say, Peradventure the darkness shall cover me; then shall my night be turned to day."

"Need I say that our morning exercises were closed with 'Praise God from Whom All Blessings Flow,' in which even the least musical raised his voice?

"During the day nearly every man took an unusual amount of physical exercise in view of the approaching feast, and the three-mile course to Dutch Island and back was, as usual, the favorite of the day. If high noon brought to us naught but the shining stars and circling planets of the night, yet our eyes and senses, trained to Arctic darkness, enabled us to keep the rough roadway through the tangled icefoot and on the palæocrystic floes. And if nature by her frosty touch had banished every living subject from our clime and thus silenced the hum of animal life, yet with grand and wordless voices she spake to us through the surging tides and crackling ice-foot.

"Our exercise was promptly done by four o'clock, but the long menu of the day delayed dinner till an hour later, as our cooks, Frederick and Long, were determined that everything should be at its best. All lands and climes paid tribute to our table, and, if the conventional turkey was wanting, it was well replaced by the ducks and guillemotes of Greenland. A delicious tenderloin of the musk ox of Grinnell Land also graced our table.

"The plum pudding had been a source of distraction to the cooks until it was announced to them that a box of canned pudding had been sent to the party as a Christmas gift from the wife of the commanding officer. The entrance of the under-cook with the pudding was the feature of the dinner. The lambent, pale-blue flames of the rum dancing about the pudding were a novelty to some and a delight to all. After the coffee each officer and man was presented with a Havana cigar, the gift of a thoughtful army lady who appreciated the weakness of the rank and file for such articles of luxury. Shortly after the dinner Sergeant Rice appeared in the officers' room, stating that he came on behalf of the men, who desired to express, through me, their thanks to the ladies whose considerate kindness had contributed so much to their pleasure and happiness on this Christmas day.

"The evening passed quickly with music and appropriate songs. At the end of one of them the night observer called loudly out:

"Eleven o'clock!"

"Christmas day at Conger was ended."

The Polar chart, compiled under the direction of Commander John R. Bartlett, Hydrographer to the Bureau of Navigation, with reference to the incorporation of the latest acquisitions to a knowledge of the regions circumjacent to the North Pole furnished by Lieutenant Greely and his party, is now substantially completed. The chart presents at a glance the marvellous amount of labor accomplished, all things considered, by the Greely party. The chart exhibits the North American Polar region, from Baffin's bay to Lincoln sea, showing the most recent discoveries, including those of the United States Polaris expedition in 1871-2 under Captain C. F. Hall, the British Arctic exploration in 1875-6 under Captain G. S. Nares, and the Lady Franklin bay expedition in 1882-3 under Lieutenant A. W. Greely, U. S. A.

The results of the explorations of the Greely party, as shown on the chart, covered three times what was accomplished by all the other expeditions named. The highest point reached by the *Polaris*, on August 31, 1871, was $82^{\circ} 15'$. Commander Markham and Lieutenant Parr, of the Nares British expedition, on May 12, 1876, touched $83^{\circ} 20' 26''$. Lieutenant Beaumont, of the same expedition, on May 21, 1876, saw Beaumont Island beyond. Lieutenant Lockwood, of the Greely party, accompanied by Sergeant Brainard, started out on their celebrated journey northward early in May, 1882, crossing over to Cape Britannia, Beaumont Island, the farthest point seen by the Nares party in 1876, skirted the coast, sketching the outline of the inlets and fiords as they went along, and passing Beaumont Island reached on May 13-15, 1882, two islands, according to the accurate scale of the chart, in latitude $83^{\circ} 30'$, or three and one-half miles nearer the pole than was ever reached by any human being, which they named Lockwood and Brainard Islands, and saw a cape ten miles beyond, bearing northeast, which they named Robert Lincoln, the highest seen point in the world and believed to be the extreme northern point of the continent of Greenland. If the same travelled distance had been possible to the northward Lockwood and Brainard would have been some ninety miles nearer the pole and in its immediate vicinity. The report will show that owing to the open sea during the spring of 1882 this party was forced to keep the coast line instead of penetrating due north, as appears to have been their purpose.

Lieutenant Lockwood adds ninety miles of carefully delineated coast to the hitherto extreme limits of geographical knowledge. Mount Schley, on Lockwood Island, is shown to be 2,500 feet high. This additional data completes the outlines, it is believed, of the northern coast of Greenland and leaves but a small strip of about ninety miles of that coast to complete the circumnavigation and circumexploration of that icy continent. The highest point reached on the eastern coast was in 1670. Since that time two centuries elapsed without any attempt to follow the coast on that side until the second German expedition, which reached, however, a lower point in 1870.

The announcement which appears to have attracted the most profound attention was that for the first time formulated

and authoritatively declared that Cape Robert Lincoln, seen by Lieutenant Lockwood and Sergeant Brainard from Lockwood Island, trending to the northeast, was the extreme northern point of the continent of Greenland. A consultation was held and the circumpolar maps were examined in connection with Lieutenant Lockwood's chart of his celebrated journey along the northern coast of Greenland, and the theory was unanimously accepted that such must have been the fact, and had Lockwood and Brainard but pushed ahead and passed Cape Robert Lincoln they would inevitably have found a southerly trend to the coast, and a journey no greater in distance than that they had already made northward from their winter rendezvous at Cape Conger, coupled with the advantage of moving nearer the warmer latitudes, would have given them the honor of completing the circumexploration of the Greenland continent.

Sergeant Brainard gives as a reason for not pushing ahead the fact that their supply of food was nearly exhausted, but had that not been the case they might have made an effort to advance farther. It is apparent that the question of circumexploration of the continent of Greenland is no longer one of doubt, but simply one of supplies for three or four men.

For the time being the question of the North Pole appears to have been set in the shade, and there is already much talk of urging the equipment of a small land or sledge party to undertake the completion of the exploration of the coast line of Greenland. The farthest land seen by Lockwood (Cape Robert Lincoln) was latitude $83^{\circ} 30'$, in longitude $35^{\circ} 30'$ west of the meridian of Greenwich. The highest post seen on the eastern coast by the second German expedition, 1870, was latitude 79° , in longitude 19° west of Greenwich, leaving but a small space of $4^{\circ} 30'$ in latitude and $26^{\circ} 30'$ in longitude to be explored. As a degree of longitude on the parallels of 79° – 83° north is but a very few miles it will be seen that a journey of the same length which Lockwood and Brainard had already made would have brought them well down the coast, within the influence of the ocean current which passes nearer by and would have made their connection with the fixed point of geographical knowledge on that coast, Cape Bismarck, latitude 77° , a certainty. It will be urged in connection with the proposed expedition to Lady Franklin bay to bring back the records and instruments of the Greely

party, left at Fort Conger, to equip a sledge party and start them out on this Greenland expedition.

Intense interest is felt in the subject among scientists and geographers. The opportunity to crown the brilliant labors of Greely and Lockwood and their heroic companions with this one grand culmination is one which it is thought the United States should not fail to improve, as the expense would be small and the objects and results would be quite different from the bare discovery of the North Pole, by having an economic as well as scientific value.

Robert T. Lincoln, Secretary of War, in his annual report to Congress, gives the following remarks regarding the Greely expedition:

"The Chief Signal Officer describes with sufficient detail the events connected with the closing of the work of exploration in the Arctic regions and the return of the survivors of the party under Lieutenant Greely. The survivors were relieved at Cape Sabine on June 22, 1884, by a naval expedition under the command of Commander W. S. Schley. The zeal and enterprise of the relieving expedition were such as to entitle all its officers and men to the highest commendation; and while it reached Cape Sabine at the earliest possible moment, the final catastrophe to the few survivors of Lieutenant Greely's party was, but for the rescue, only a few hours distant. The Greely party numbered twenty-five persons, of whom only seven were rescued alive, and one died after the rescue. Of the dead, all perished from starvation except an Esquimau, who was drowned, and Private Henry, who was executed by order of Lieutenant Greely for repeated thefts of food from the insufficient supply of the enfeebled and distressed company.

"The Secretary of War observes with regret that the Chief Signal Officer has chosen to make, in his annual report, a formal expression of opinion that, after the arrival of the wrecked Proteus party on September 13, 1883, at St. John's, there was still time, 'as known from previous experience and shown by subsequent facts, to send efficient relief,' stating that 'Captain Melville and others volunteered to go, giving their full plans for the relief.'

"A contention as to what would have been the probable result of an expedition to the Arctic regions started in the autumn, with such preparations as could be made after the mid-

dle of September, is now useless for any practical purpose, but a few words may properly be given to the subject, as there may be persons whose humane consideration for the terrible situation in which Lieutenant Greely and his party existed for months may not be accompanied by a knowledge of the opinion of experienced persons as to the danger of disaster and the little hope of success of any attempt to approach him at that season.

"The Proteus party, after the wreck of that ship, reached St. John's September 13, 1883. Lieutenant Garlington, in charge of the party, was on that day asked by telegraph whether anything more could be done that year. He replied, on September 14: 'By the time suitable vessels could be procured, filled, provisioned, etc., it would be too late in season to accomplish anything this year.' Notwithstanding this response, on the same day, by direction of the Secretaries of War and of the Navy, a further telegram was sent to Lieutenant Garlington asking for full replies from himself and from Commander Wildes, commanding the United States steamer Yantic, upon certain questions propounded, and further asking whether it was a feasible project to charter a steam-sealer to go northward, the telegram making also some suggestions as to the outfitting of the ship and men. To this Lieutenant Garlington replied by telegraph, September 15th, at length, saying, among other things: 'The ultimate result of any undertaking to go north at this time extremely problematical; chances against its success, owing to dark nights, now begun in those regions, making ice-navigation extremely critical work. There is no safe winter anchorage on west shore of Greenland between Disco and Pandora Harbor, except, perhaps, North Star Bay, winter-quarters of Saunders. However, there is a bare chance of success, and if my recommendations are approved I am ready and anxious to make the effort.' He then made suggestions as to hiring a steam-sealer, and how it was to be commanded and manned. Commander Wildes replied in these words, under date of September 15th: 'To charter another foreign ship with foreign crew for this duty to go north at this late season would simply invite fresh disaster. . . . Ship must be American manned and officered by navy and thoroughly equipped. Unless winter-quarters can be reached north of Cape Athol, the attempt would be useless. This cannot be done. Mel-

ville Bay will be impassable by October 1st, at latest. Ship cannot winter at Upernavik and cannot sledge north from there.'

"Under date of September 14, 1883, Chief-Engineer George W. Melville, United States Navy, submitted a proposed method of relief for the Greely party, which was in substance to use the steamship Yantic, but there was no suggestion in his proposition of any hope of getting the Yantic farther north than Cape York, his plan being to sledge northward from there. Under date of September 15, 1883, Dr. James Laws, who was surgeon in the Hartstene expedition sent out to the relief of Dr. Kane in 1855, strongly urged the utter impracticability, from his experience, of any expedition, however well fitted, being able to reach a point where it could be of the slightest service to the Greely party. He said that before an expedition could reach the shores of Greenland it would be dangerous to proceed above Disco Island. Captain George E. Tyson, who, as is well known, was with Hall's last expedition, and was in command of the party which floated down from the Arctic regions on an ice-floe, offered his services to lead an expedition, but he made no suggestion to go in the autumn of 1883. On the contrary, he expressed, in personal conference, his firm conviction of the impracticability and danger of undertaking such an expedition in the autumn.

"Persons whose experience and studies gave their opinions weight were personally consulted by the Secretaries of War and of the Navy, among them being Captain Greer, United States Navy, who went to Littleton Island in 1873, in command of the Tigress, in search of some of the company of the wrecked Polaris, and Doctor Emil Bessels, who was in charge of the scientific work of the Polaris, and after its wreck in 1872 spent the winter at Life-Boat Cove. Upon consideration of all information, the conclusion was inevitable that, under the most favorable conditions, a vessel might reach Upernavik, but that it could go no farther north in that season. This point is about seven hundred miles from Littleton Island, and the stretch of water and land between is impassable for boats or sledges after the 1st of October, and oftentimes after the 1st of September. The Arctic night begins at Upernavik about the middle of October, and it was considered that, setting aside all questions of its own perils, the best that a new relief expedition at that time could do

would be to go a part of the way and wait for the next summer to resume the journey. The testimony was conclusive that sledging north from Upernavik was impossible.

"The deplorable situation of the Greely party then feared but since known to exist, did not lessen the perils which would have beset any relief party started at the beginning of an Arctic winter. The Secretary of War knows of no one whose opinion would be considered, except the Chief Signal Officer, who would not have regarded such an expedition not only as substantially hopeless for any relief earlier than was actually given, but perilous in the extreme, if not foolhardy.

"Nothing is more illustrative of the impossibility of overcoming at all times the difficulties of Arctic travel, whether by land or sea, than the fact that two-thirds of Lieutenant Greely's party starved to death at Cape Sabine with one hundred and fifty pounds of meat untouched at Cape Isabella, distant about thirty miles, and with two hundred and fifty rations untouched at Littleton Island, at about the same distance, but separated by Smith's Sound. It probably never occurred to any one that the Greely party could not easily reach and use both of these stores.

"The conclusion reached, after most anxious and careful consideration, was, on the 19th of September, 1883, embodied in a written memorandum of the Secretary of War and the Secretary of the Navy, which was given in full in my last annual report, and which was in part as follows:

"The Secretaries of War and the Navy have decided that it is not practicable to send another expedition to the relief of Lieutenant Greely this year. They have consulted those persons of Arctic experience who are recognized as the best authorities, and who are near enough to be reached, and have received letters from some who are more distant. These consultations lead to the conviction that little can be accomplished after October 20th, when there are but few hours of daylight in that region. It is doubtful if any vessel could reach Upernavik before that date on account of the ice, the rapidly shortening days, and the increasing cold. The danger of wrecking a new relief party in its attempt to reach this place is far greater than should be incurred for the chance of rendering any aid to Greely. From Upernavik no aid could be given except by sledging, and this is regarded as totally impracticable. The short marches and the long halts, com-

pelled by the darkness, would force the sledging parties to consume so much food while accomplishing brief daily journeys, that they could afford no succor to Greeley, and having no depots on the way to draw on, they would soon be compelled to fall back to avoid starvation. Some have suggested sending a vessel to Cape York, but no one advises that it can be reached without imminent peril to the vessel and all on board; and from that point, if attained, the impossibility of sledging is again encountered. The distance from Littleton Island to Cape York is about 225 miles, and to Upernavik 550, and to Disco 800.'

"It may be added that the Secretary of War, while deploring the terrible loss of life incurred by the Lady Franklin Bay expedition, has never seen reason to doubt the propriety of these conclusions reached by the Secretary of the Navy and himself, upon all the considerations which were available to them.

"To some of the criticisms made by the Chief Signal Officer in his report no reference seems to be required, beyond saying that the Proteus Court of Inquiry, so called, had the merit of basing its conclusions as to the officers with whom it dealt upon such information of facts and conditions as was attainable by the officers themselves at the time of their action, as well as by the court. But the expression of the Chief Signal Officer, above referred to, is an intrusion of an official opinion as to the propriety of the course of the Secretaries of War and of the Navy in not hazarding more lives in 1883 in a nearly hopeless adventure, upon his telegraphic requests. This excursion into an official jurisdiction beyond his own, and his *dictum* upon the exercise of a superior responsibility which he was not invited to share are extraordinary in their time and place, and are hardly excusable even under whatever of irritation may have been caused by the findings of the Proteus Court of Inquiry. Waiving, however, that consideration, if there had at the time been given more weight to the views of that branch of the public service, under whose management there had been one futile and one disastrous expedition in the northern seas in two successive years, than to the views of men having experience in such matters, it is now hardly to be doubted that we would have had last summer the news of two Arctic calamities instead of one. It is not thought that the public would wish better evidence of this than is to

be found in the official report of Commander Schley, from which I quote:

"In view of the disaster to the Lady Franklin Bay expedition at Cape Sabine, and the conclusion of the department last year that it was impracticable to send another vessel north after the Yantic's return to St. John's, September 13, 1883, with the report of the loss of the Proteus, I would state that the past winter in Melville Bay was the most severe experienced for thirty years.

"The winter began earlier than usual, and continued with great severity late into the spring of 1884. About the equinox (September 21st) cold weather set in, and the temperature steadily fell at Disco, Upernavik, and Tessuisak until 60° below zero (Fah.) was reached. This continued for a period of sixty consecutive days. Melville Bay was frozen over as far as could be seen from these three points early in October. As the season of continual darkness had come on by October, the navigation of this region would have been well nigh impossible even if the bay had been open. Under the circumstances any vessel attempting this navigation would have come to grief, if she had not been totally lost.

"It can be seen now in the light of this new information that the action of last year was wise and proper."

Lieutenant Greely has laid down his opinion upon the advisability and propriety of future Arctic expeditions in the following article:

"There are five routes by which attempts have been made to reach the goal of Arctic ambition—the North Pole. The Behring's Straits route has probably been closed for many a year by the unfortunate issue of the expedition which was commanded by the lamented DeLong. The highest latitude ever reached in that direction was by DeLong in the Jeannette. The lack of land to the northwest forbids any attempt in that quarter, for all authorities on Arctic exploration are quite agreed that land is essential to success. In addition, the southeast current very largely increases the danger, for a vessel once beset by the pack inevitably drifts to destruction. No ship which has been caught in that ice has ever escaped from its grasp, and no hero has ever returned to tell the tale until the indomitable will and tireless energy of DeLong, Chipp and Melville landed the survivors of the Jeannette on the Siberian coast 600 miles from their lost

vessel. To the northwest the terrible character of the palæocrystic pack met by McClure and Collins on the west coast of Bank's Land is equally unfavorable. Indeed, should an attempt be made in that quarter, it should rather be from Baffin's Bay through Lancaster Sound and McClure's Strait, in the hope that a safe harbor could be found at Prince Patrick Island. It was by this route that Parry in 1819 succeeded in reaching Winter Harbor, Melville Island, in a sailing ship, and returned without trouble in the following year. In my opinion, however, no profitable or successful Arctic work can be prosecuted in the future in either quadrant to the northward of Behring's Straits.

"Second—The Smith Sound route. By this route the nearest approaches to the Pole by land and sea have been made—on June 30, 1872, Sergeant Myer, U. S. Army, of the Polaris expedition, reached $82^{\circ} 07'$ on the shores of the Polar Ocean, near Repulse Harbor. In May, 1876, Lieutenant Aldrich, R. N., reached the northern point of Grinnell Land, Cape Columbia, $83^{\circ} 07'$ north, $70^{\circ} 10'$ west. On May 12, 1876, Commander Markham, R. N., reached $83^{\circ} 20' 26''$ north on the frozen Polar Ocean, at that time the greatest northing ever made. This latitude was surpassed by Lieutenant James B. Lockwood, U. S. Army, who, carrying land twenty-eight miles farther north than ever before known, reached $83^{\circ} 24'$ May 18, 1882, on the north coast of Greenland.

"This has been called distinctively the American route, but in my opinion it is not the true road to the Pole. It has, however, been practically closed by Aldrich's remarkable trip on the shores of the Polar Ocean to the westward from Robeson's Channel, and by Lockwood's magnificent and unparalleled journey along the north coast of Greenland. Another properly appointed expedition by this route would require two staunch vessels, with thorough outfit, entailing an expense of about \$750,000. By skillful management, hard work, and, above all, good fortune, it could hope to beat Lockwood's latitude but a few miles, certainly not a degree. A single bad year for ice to the northward of Smith's Sound would insure failure, if it did not cause dire disaster. It is true that much work needs to be done to the westward of Hayes' Sound, in the vicinity of Arthur Land, but in that direction no high latitude could be attained. The Lady Franklin Bay expedition, which I had the honor

to command, discovered that Cape Sabine is on an island (Bedford Pim Island) and is separated from the main coast by Rice Strait, which connects Rosse Bay and Buchanan Strait. By this route a vessel can safely reach Alexandria Haven from Cocked Hat Island by watching her opportunity. From that base Hayes' Sound and its connecting waters can be easily explored. Such a voyage would entail less danger than is consequent on an ordinary whaling cruise.

"The third route is up the east coast of Greenland. It was strongly advocated by the eminent geographer, the late Dr. Petermann, who fitted out the German expedition of 1868 and assisted in the second expedition of 1869. Both expeditions were commanded by Captain Koldeney. The highest known latitude ever attained on this coast was reached by Koldeney and Payer in 1870—Cape Bismarck, 77° . The radical objection to this route is the wide belt of heavy and impenetrable drift ice along the coast, which is continually renewed by the immense quantities of ice drifting southward from the Polar Basin. As far as I know no one now advocates it.

"Fourth—The Spitzbergen route offers a chance, though it be a slight one, of a very high latitude. It was here that Sir Edward Parry, in 1827, leaving Hecla Cove, Spitzbergen, $79^{\circ} 55'$ north, $16^{\circ} 53'$ east, reached on July 23, by boat and sledge, $82^{\circ} 45'$ north. This latitude remained unsurpassed for fifty years, till beaten by Markham in 1876, who in turn gave way to Lockwood in 1882. Owing to the southerly drift, Parry's extreme point was but 172 miles from his ship, although he had travelled nearly 500 miles, exclusive of double trips over the same road. I believe that by this route in a very favorable season, say one year in ten or twelve, a well-manned whaler could reach 84° or 85° north without serious difficulty. Such a voyage would entail the chances of an entanglement in the pack, with the possible destruction of the vessel, as happened to the *Hansa*. Under such circumstances, however, as the drift is southerly, ultimate escape by vessel or boats would, in all probability, be feasible. Involving as it does, a violation of the fundamental principles of Arctic navigation, and entailing great and serious risks, such an expedition is not to be recommended.

"Sir Edward Parry, the most successful of Arctic explorers, after his remarkable voyage in 1819–20 through Lancaster and

other sounds to Melville Island, enunciated the law of successful ice navigation in the Polar seas. He said: 'It can never be performed with any degree of certainty without a continuity of land. It was only by watching the openings between the ice and the shore that our late progress to the westward was effected, and, had the land continued in the desired direction, there can be no question that we should have continued to advance, however slowly, toward the completion of our enterprise.'

"I think all Arctic authorities now concur in Sir Edward's opinion. To this has been added another proposition, which originated, I believe, with Sherard Osborne, but has of late years been strenuously supported by Commander Markham, R. N.: 'To penetrate far into the unknown region, it is necessary to find a coast trending northward with a western aspect.' This is negatively substantiated, not only by the loss of the *Jeannette*, but by the fact that the shores of East Greenland are practically inaccessible, while Spitzbergen can rarely, if ever, be coasted along its eastern side. Positive and convincing evidence is presented by Barent's voyage to the north point of Nova Zembla, Parry's to Melville Island, McClure's to Mercy Bay, Kane's to Van Rensselaer Harbor, Hall's to Thank God Harbor, Nares' to Floeberg Beach, Leigh Smith's to Eira Harbor, as well as by the whalers' yearly experiences in reaching the north water of Baffin's Bay. The cause of this may in a measure depend on the rotary motion of the earth or other complicated phenomena, but a reasonable explanation is, perhaps, to be found in the northeasterly winds which prevail to such an extent in the Arctic regions.

"Long sledge journeys are necessary for successful exploration even after the vessel is in harbor at a high latitude. The easier the harbor is of access, so much greater will be the chances of ultimate success. These conditions—continuity of land, with northern trend and western aspect, a secure harbor easy of access, together with good ice for sledging operations—are all fulfilled in the fifth route, via Franz Josef Land.

"Ever since my attention was first drawn to Arctic work I have regarded this as the true route to the Pole. The voyage and experiences of Leigh Smith in 1880, 1881, and 1882, leave no doubt that at some season of every year Franz Josef Land

may be reached by a well-fitted steamer. His experiences at Eira Harbor in the winter of 1881-82, show that the explorer can depend to a certain extent on the game of the country as a means of sustenance. Lieutenant Payer's sledge trips of 1884 indicate a much greater proportion of smooth ice than has been found in any other route. In thirty days he made a round trip of about 325 miles, reaching, April 1, 1874, Cape Fedgely, $82^{\circ} 05' N.$, $58^{\circ} E.$ From that point he observed open water of no great extent along the coast bordered by ice, reaching in a north and northwesterly direction to masses of land, whose mean distance from this highest point might be from sixty to seventy miles.

"Cape Vienna, the most northerly point seen by Payer, is laid down by him as situated on the 83d parallel. The extent of land beyond that point is, of course, problematical. The distance from the southern coast of Franz Josef Land to the northernmost point of Nova Zembla is about 180 miles. In case of disaster, a retreat by boat is practicable. Weyprecht, in 1874, after the abandonment of the Tegetthof, and Leigh Smith, retreating in 1882, in consequence of the loss of the Eira, made the journey successfully.

"This route then presents unusual chances of success with the minimum of danger. It is more than possible that an English expedition will enter these waters. Chief-Engineer Melville, U. S. N., has in view an expedition by this route, and his varied Arctic experiences and indefatigable energy mark him as a man peculiarly fitted for this work. It is, therefore, to be hoped that he will be given the desired opportunity. Two ships, with about sixty men and officers, would be needed. One vessel should winter in Eira Harbor or some secure point near by, while the second should be pushed as far northward as possible, preferably by Austria and Rawlinson's Sound, but, if that is not possible, along the west coast of Franz Josef Land beyond Cape Ludlow. The vessels should be provisioned for three years, and the crews should be quartered in temporary houses to be erected on shore. Quarters on land are recommended as being freer from moisture than is possible on shipboard, a fact which to my mind has an important bearing on the question of health. A depot of supplies for use in case of disaster might be established on the northern coast of Nova Zembla. With two vessels this would not be indispensable, but none the less wise and prudent.

"Although not a seaman, I think the following views fairly cover the essential points regarding vessels and navigation: Small, easily-handled steam-whalers, of good speed, should be selected. I have nothing to say as to the best method of strengthening them, but presume those adopted in regard to the vessels of the recent relief expedition leave nothing to be desired in that direction. It is essential that each vessel have a steam whale-boat. It is universally admitted that navigation is impossible through close pack ice. In consequence, the utmost care should be taken to avoid besetment. Ross has truly said, that patience and caution are indispensable to an Arctic navigator, and to no greater advantage can these qualities be exercised than in avoidance of dense pack ice. A ship should maintain almost constant motion, and only moor when absolutely necessary, and then only to an iceberg. Careful observations of the currents and of the ebb and flow of the tide are of the greatest importance. Marked movements of the ice are more liable to occur after the turn of the tide, and the probable effect of such changes must be foreseen and discounted. It was mainly by increasing watchfulness of winds, currents, and tides, and by sound judgment regarding their effects, that Sir George Nares succeeded in working his vessel from Sabine to the Polar Ocean and back during two unfavorable ice seasons. It was from similar observations that I was enabled during the retreat in 1883, in a like unfavorable year, and on the same coast, to bring my boats in safety from Discovery Harbor to Cape Hanks.

"The expedition should receive its final supplies from Tromsø, and should not leave that port before the latter part of July. August and September there, as in Smith Sound, are undoubtedly the most favorable months for ice navigation. In case of a bad year for ice, the vessels should rather return, to renew the expedition the year following, than adventure the experiences of the Tegetthof. The question whether dogs or men should be employed in hauling is debatable among Arctic men. I unhesitatingly assert, that with dogs nearly double the distance can be made that is possible with men. Shelter, fuel, drink, sleeping-gear and extra clothing, which form so large a proportion of constant weight, are not needed for dogs. Lockwood's great northing was made by a combination, the supporting sledges being drawn by men, the advance sledge by dogs. He travelled far enough in

ninety days the first spring, after the sun's return, with his single team of seven dogs, to have reached the Pole and return, had it been in a straight line. In 1883, depending on dogs alone, he reached the shores of the Polar Ocean in less than half the time taken by men and dogs combined the previous year.

"The qualification of the commander of an expedition need not be dwelt on. Much and varied previous service is indispensable, but, in addition, he should be a man who has carefully studied the plans and equipment of all his predecessors in active work. He should not be above five and forty. Subordinate officers should be under thirty-five, enterprising, fond of field-service, and thoroughly dependable—men who will work loyally and faithfully under any and all circumstances, and never give mere passive obedience. Officers with varied talents and special training should be selected. One should be a photographer. The men should be as far as practicable of one nationality, of sociable nature, sunny disposition, intelligent, observant, self-reliant, patient, persevering, and moral, and of that class which has seen some hard service. They should be unmarried, and between twenty-five and thirty-five years of age. No man should be taken who has ever been addicted to the use of stimulants. Only in exceptional cases should a man be enlisted who had served in a previous expedition. They should be selected and kept under discipline some time before sailing, in order that those unfit might be weeded out. Some should be good hunters, and as many useful trades represented as possible. Perfect health is necessary, but especial attention should be given in medical examination to the condition of the eyes, lungs, teeth, circulation of blood, and as to rheumatic tendencies.

"Regarding food, there should be a great variety, and no set programme as to the order in which it is to be issued. Calculations should be made for five pounds per man daily, and one and one-half pounds per dog. Bacon, corned (not salted) beef, ham, and pemmican are the standard meats. Freshly-killed meat should be taken in large quantities in refrigerators. Birds killed by us in July in Greenland were eaten the next June at Conger. Soups, canned and dried fruits and vegetables of all kinds are especially important. Fresh bread should be had daily. Macaroni, condensed milk, oatmeal, butter, lard, cheese, pickles, preserves, condiments

and tobacco should be liberally provided. The regular use of highwines should be discountenanced. About one gill weekly per man was consumed by my party, but I should recommend not exceeding half a gill more, or preferably half a pint of vin ordinaire. For dogs, dried fish or meat must be provided; they will not eat dog or other biscuit unless nearly starved. While working meat should always be fed to them. The value and utility of skin clothing has been largely overrated. Thick woollen garments of smooth finish, and heavy flannel underclothing of excellent quality, are enough for all ordinary travel. For unusual exposure, an overcoat slightly lined with dogskin or a heavy woollen *temiak* (a hooded shirt, generally of sealskin) is sufficient. Any well-lined skull-cap, with ear-flaps, will do for head covering. No satisfactory means of protecting the face is known. Woollen, with outer sealskin mittens, form fitting hand-gear. No single kind of foot-gear is suitable for all conditions. Moccasins and Esquimaux seal boots should be taken in quantities. Leather boots do well in summer only. Heavy woollen stockings, half short and half reaching to the knees, are best for general use. Sleeping socks should be of dogskin. Well-tanned, selected buffalo robes made into two-men sleeping-bags are best.

"The Greenland and the Siberian sledges are recommended for dogs. In case hauling is to be done by men, then the McClintock and Hudson Bay sledges should be taken. The Melville sled is excellent for retreat where heavy boats are to be hauled. Sledges are inexpensive, and conditions of travel so vary that all contingencies should be provided against. Alcohol is the best field fuel. Copper-bottomed, fireproof cooking-pots, with cylinder in centre, are excellent for sledge trips. There is but little choice regarding tentage, but rubber tent-cloths should be taken.

"Regarding medicines, iron was most in demand with my party, except lime-juice daily issued. I doubt governmental aid being extended to Arctic exploration for years to come, but none the less believe in the propriety and certainty of future Arctic work.

"The expedition suggested by Lieutenant Ray, United States Army, at the meeting of the British Society for the Advancement of Science at Montreal, should receive the attention and support of scientific men. The magnetic pole

of Bothnia Felix Land, located by Ross in 1831, has probably changed its position in the past fifty years. Its re-location would be an important contribution to science. With a home station at Repulse Bay, or in Wager River, I believe this work could be done without great expense or serious danger. The benefits to be derived from such an expedition would not be confined to terrestrial magnetism. As regards the ethnology, botany, and natural history, the country around King William Land is substantially a blank.

"A. W. GREELY, U. S. A."

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ANTARCTIC EXPLORATIONS.

CHAPTER I.

EXPEDITIONS TO THE ANTARCTIC REGIONS.

The South Polar Regions even more Inhospitable than the Arctic—An Antarctic Summer—Search for Terra Australis—First Voyage Around Cape Horn—Captain Cook's Expedition to Discover the Northwest Passage—His Arrival at the Sandwich Islands—Murdered—Captain Clerke takes Charge of the Expedition—The New Shetland Islands—The Russian Sea Captain Bellinghausen Reaches a very Southern Point—Expeditions of Captain D'Urville of the French and Lieutenant Wilkes of the United States Navy—Victoria Land.

THE cause why the South Pole has not received the attention which has been lavished on the North Pole is to be found in the fact, that while the Arctic regions do not present many attractions for travel, and even less for residence or settlement, the Antarctic regions are still more unpromising and unattractive in both particulars. The extreme intensity of Antarctic cold commences at a much higher latitude than in the Northern hemisphere. In the Arctic seas large icebergs are rarely found till the 70th parallel of latitude is reached, while stationary fields are only met in a still higher latitude. In the South Pacific both occur at from 50° to 60° of southern latitude. The mountains of Cape Horn, of Terra del Fuego, and outlying islands, are covered with perpetual snow quite to their sea-coasts. "This contrast," says Professor Tomlinson, in one of the few general works we possess on the subject, "has been ascribed to the shorter stay which the sun makes in the southern hemisphere than in the northern. But this difference, amounting to scarcely eight days, has been proved to be exactly compensated by the greater nearness of the earth to the sun during the southern than during the northern summer. Another cause must therefore be sought, and as it is a fact that water becomes less heated by the same amount of sunshine than any solid substance, this cause will be found in the vast extent of the Antarctic seas, the total

absence of any great surface of land, and the form of the continents which terminate towards the south almost in points, thus opening a free and unencumbered field to the currents from the Polar seas, and allowing them to push forward the icy masses in every direction from the South Pole towards the southern and temperate zone."

Winter in the Antarctic corresponds to summer in the Arctic, and *vice versa*. When the Arctic circle is delighting in one long summer day, the Antarctic regions are oppressed by the darkest gloom. When we are enjoying the bright days of midsummer, the southern Polar regions are pitchy dark, while at our Christmas-tide that part of the earth is bathed in floods of sunshine.

It has been seen that our knowledge of the North Polar seas has been largely the result of explorations in search of a northwestern or northeastern passage or strait to the Pacific. The exploration of the Antarctic regions is mainly due to quests after a continent in the southern seas—the *Terra Australis incognita* of many old geographers. The belief in the existence of such a land can be traced back as far as 1576, when Juan Fernandez is reported to have sailed southward from Chile, and to have arrived after a month's voyage at a charming fertile land inhabited by friendly and almost civilized natives. If the story be not altogether apocryphal, it may possibly have been some part of New Zealand. At the same period there were wild reports in circulation concerning the discovery by Alvaro Mendana de Neyra of some southern islands abounding in silver. That navigator, however, could not find them at all in a later voyage, and perished miserably, with many of his companions, at Egmont, or Santa Cruz Island. His pilot, Pedro Fernandez de Quiros, in 1605-6 made a professed voyage in search of the southern continent, his voyage resulting in the discovery of Pitcairn's Island, the New Hebrides, and other lands, while one of his captains, Luis Vaes de Torres, passed through the strait between Australia and New Guinea now named after him. The first actual approach to the then unknown southern polar lands appears to have been made by one Dirk Gerritz, a Dutchman, in January, 1600. This vessel was in the East India service, and was driven by a gale from the immediate latitude of the Straits of Magellan far to the south, where he discovered a barren, craggy, snow-covered coast, similar to that

of Norway. His accounts were discredited, but have since proved to have been accurate enough, and the land is now known as New South Shetland, and has been proved to cross the Antarctic circle. The expeditions of Kerguelen, sent out for the purpose of exploring the southern regions, resulted only in the discovery of the group of islands now known by his name. It is to the celebrated Captain Cook that we owe the earliest careful explorations of the south polar regions.

The States-General of the Netherlands were sharers in the profits of the trading company they had established, and had ordained that none but the servants of the company should go to the Spice Islands. As an added protection, the routes by the Cape of Good Hope and the Straits of Magellan were by law reserved for their exclusive use. The other merchants might traffic all the world over with these trifling restrictions, but to steer their barks by either of these routes entailed the penalty of confiscation of the vessels and arrest of the owners. Schonten, a navigator of experience and ability, conceived the project of finding a passage south of the Straits of Magellan. Assisted in the enterprise by Lemaire, who also accompanied him as supercargo, or perhaps as captain, of one of the vessels, and some other merchants of Horn in Holland, Schonten, in 1615, fitted out two vessels, and made the first voyage by way of the American Cape, which he called Horn, in honor of the town in Holland where the expedition had been organized.

The strait between Terra del Fuego and Staten Island—that is, island of the States in Holland, also so named by Schonten—he named in honor of his companion, Lemaire, who, for all that, it appears was himself its actual discoverer. After many adventures and discoveries in the islands of the Pacific, they arrived in safety at the Moluccas, in sixteen months from the day of their departure from the Texel. Their vessels were confiscated by the East India Company, and the officers and crew sent home for trial. Lemaire, disappointed and excessively chagrined at such a reward for the services rendered, and the discoveries made by himself and companion, died on the voyage home, at Mauritius, in 1616. Schonten, less sensitive than his patron, the merchant, and, as an experienced captain, more accustomed to the arbitrary proceedings of the officials of the great Dutch company, lived to perform several routine voyages to the East, and

died in 1625, in the Bay of Antongil, on the east coast of Madagascar, where he had taken refuge from tempestuous weather on his last return voyage—a hero of maritime exploration not so celebrated as some, but worthy of being rescued from oblivion.

Phipps' failure due north did not extinguish the hope of finding a route from the Atlantic to the Pacific in the northwest. The famous Captain Cook had won fresh laurels as a navigator in 1772, and had been awarded the Copley medal for his success in preserving the health of his men during his voyage around the world. His courage, sagacity and experience pointed him out as the man for the contemplated search voyage; and having volunteered his services he was gladly appointed to the command. His instructions were to proceed to the North Pacific, to commence his search on the northwest coast of America in latitude 65° , and to waste no time in instituting researches in lower latitudes. The *Resolution* and *Discovery* were speedily fitted out, and the latter placed under the subordinate command of Captain Edward Clerke. Bayley and Anderson, companions of his former voyage, accompanied Cook as astronomer and naturalist.

July 12th, 1776, Captain Cook left Plymouth, England, and was joined by Captain Clerke in Table Bay, near the Cape of Good Hope, some weeks later. It was the last day of November before they left the Cape, whence they proceeded eastward through the Indian Ocean, passing Prince Edward's Island December 12th, and reaching Kerguelen Land on the 24th, ascertained it to be an island, and characterized it as the Island of Desolation. For three hundred leagues east of Kerguelen they were so beset by fog that it was necessary to fire signal guns to avoid getting separated in the dark. They arrived at Adventure Bay on the south coast of Van Diemen's Land, now Tasmania, on the 26th of January, 1777, and in Queen Charlotte's Sound, New Zealand, on the 12th of February. On the 25th they proceeded northward, reaching Mangaia and Atioo, two of the Cook Islands or Hervey Archipelago, on the 29th of March. The season was now considered too far advanced to venture into unknown seas with the prospect of achieving anything important, and Captain Cook decided on further exploration in the tropics, postponing his northward trip until the following year. They spent nearly three months in peaceable intercourse with

the natives of the Tonga and Feejee groups, to which Cook gave the collective name of Friendly Islands. On the 12th of August they arrived at Tahiti or Otaheite, one of the Society Islands, to the southeast of the Friendly Islands. On the 8th of December they again directed their course to the northward from Bolabola, the most northern of the Society group; and on the 18th of January, 1778, they discovered the islands of the Hawaiian Archipelago. Cook named these the Sandwich Islands, in honor of the first lord of the British admiralty, John Montague, Earl of Sandwich, the chief promoter of the voyage in which he was now engaged.

After a stay of several weeks Cook now directed his course for the mainland of America, reaching the New Albion of Drake, in latitude $44^{\circ} 33'$, on March 7th. Coasting north, they arrived at Nootka Sound, in latitude $49^{\circ} 35'$. The inhabitants were found clad in furs, which they offered for sale, and were civil to the strangers. They evinced an almost English appreciation of the rights of property, expecting pay for everything that was taken, even the wood and water necessary for the ships. They were acquainted with iron, but preferred brass, whence it came to pass that the sailors bartered all their buttons for furs. In latitude 59° the natives were found to resemble the Esquimaux of Hudson's Bay in language as well as in physical appearance, and were not so grasping in their dealings. In what has since been named Cook's Inlet they thought to have found a passage to the Northern Ocean, but found it penetrated only about 200 miles. Cook then sailed westward, and on the 9th of August made the extreme northwestern point of America, to which he gave the name of Cape Prince of Wales, distant from the northeastern point of Asia, at Cape East, only thirteen leagues, as ascertained by him. They landed among the Tchuktchi, but did not tarry long, as they were anxious to push to the north before the close of the season.

On the 18th of August, in latitude $70^{\circ} 44'$, they came abreast of the ice, which they found six feet high on the edge, and extending as far as the eye could reach, an impenetrable mass, covered with walruses. Of these the sailors killed a considerable number, glad to exchange the monotony of salt provisions for the fresh but coarse flesh of these animals. Cook now concluded to turn from the impracticable Northern Ocean and turn his attention for a season to the further exploration

of the Sandwich Islands. On the 26th of November they arrived at Mowee or Maui, an island of that group, which they had not before visited, in latitude $20^{\circ} 50'$, and on the 30th the large island of Owhyhee or Hawaii, which Cook spent seven weeks in circumnavigating and surveying. They finally anchored in Kealakeakua Bay, about the middle of January, 1779, and were visited by crowds of natives. The relations of visitors and visited, of civilized English and semi-barbarous Hawaiian, were mutually pleasant; nothing occurred to mar the harmony of their intercourse, and the opinions formed by each party of the other grew daily more favorable, as weeks of acquaintance passed into months, and the English still lingered on their hospitable shores. Captain Cook very justly felt that the failure to penetrate the Northern Ocean was more than compensated for by the discovery of these islands. "To this disappointment," says he, "we owed our having it in our power to visit the Sandwich Islands, and to enrich our voyage with a discovery, which, though the last, seemed in many respects to be the most important that had hitherto been made by Europeans throughout the extent of the Pacific Ocean."

Provisions were procured in abundance for the "floating islands," as the Hawaiians called them; and Cook was quite successful in salting a quantity of pork for sea stores. Finally he prepared to sail around the islands to make an accurate survey of the whole group, and weighed anchor on the 4th of September. But a storm arose soon after, which seriously sprung the mainmast of the Resolution, and they re-entered the harbor for necessary repairs. In the short interval that had elapsed the better disposed of the native population, with most of their leaders or chiefs, had withdrawn into the interior. The crews now came in contact with the more thievish and unprincipled of the Hawaiians, and quarrels became almost incessant. A serious feud arose through the theft of a pair of tongs from the forge of the ship's smith by an unprincipled native. The English sent in pursuit of the thief were roughly handled by a mob, and on the heels of this redoubled outrage followed the theft of one of the ship's boats. Captain Cook hereupon determined to seize the king, Tereoboo, and hold him as a hostage for the good behavior of his people and the return of the stolen property.

On the 14th of February, 1779, he landed with a body of

armed marines to carry out this resolution. The king offered no resistance, but with his two sons peacefully accompanied the English to the shore, when the excited natives gathered in crowds and prevented the embarkation. An accident precipitated the impending conflict. One of the armed Englishmen at the other end of the bay fired a gun to stop a native canoe that was about to quit the shore. Unfortunately, through misdirection of aim or oscillation of the canoe, the shot that was intended to pass overhead killed a chief named Kareemoo. The natives, taking this for a gage of battle, prepared for war, brandished their knives, and put on their war mats. Captain Cook restrained his men, and they held back their fire till it was too late. Threatened by a native, Cook himself fired his musket loaded with small shot, which only rendered his assailant more furious. The marines and the crew now fired on the mob, but these were so closely packed at the water's edge that they crowded each other on toward their assailants, and in the melee four of the English were killed. The jam became so great that firearms were of but little use, and Cook was at the mercy of his enemies. He was seen to make an effort to reach the boat, with one of the natives in close pursuit, who, dealing him a stunning blow on the head with a club, precipitately retreated. Cook fell on one knee and dropped his musket, and, as he was rising, another native stabbed him in the back of the neck with a dagger. He then fell into the water, when others crowded upon him to keep him down. He was within twenty feet of the boat, but the mass of his assailants was so dense, and the crew so confused and panic-stricken, that he could not be rescued. He struggled bravely with his foes and got his head above water, when they again pounced upon him with greater violence, pushing him into deeper water. Again he forced his way to the surface, but only to be struck down with a club, which terminated the struggle. They then hauled his lifeless remains ashore and vied with each other in inflicting unnecessary wounds upon their fallen victim.

The natives were soon after dispersed, seeming to have glutted their revenge by the slaughter of Cook. Some time elapsed before Captain Clerke could obtain the mutilated remains for burial. They were committed to the deep with the customary naval honors, and amid the sincere lamentations of the afflicted crews. Captain Cook was specially solicitous of the welfare of his men.

Captain Clerke now assumed command of the expedition, intrusting his ship, the *Discovery*, to the immediate command of Lieutenant Gore. They proceeded to the Northern Ocean, touching at Petropaulovsky, in Avatcha Bay, on the coast of Kamschatka, where they were received by the Russians with marked hospitality. Passing thence through Behring's Strait, they reached latitude $70^{\circ} 33'$, where they encountered the ice some twenty miles lower than on the previous occasion. They relinquished all further attempt in that direction, and set sail for the homeward voyage. When they again reached Kamschatka, Captain Clerke died, and was buried on shore. The command of the expedition then devolved upon Captain Gore, with Lieutenant King in charge of the second vessel. They arrived at Macao, at the mouth of the Canton river, in China, December 3d, when they learned of the war between England and her American colonies, aided by the French; and at the same time of the generous order of the latter government that the vessels of Cook's expedition should be treated as neutrals by the cruisers of France.

In Canton the English seamen enjoyed an episode that formed an agreeable contrast to their late experience. They found an unexpected market for the furs for which they had bartered knives, trinkets, and even their brass buttons two years before on the northwest coast of America. "One of our seamen," says Lieutenant King, "sold his stock alone for \$800; and a few prime skins, which were clean and had been well preserved, were sold for \$120 each. The whole amount of the value, in specie and goods, that was got for the furs in both ships, I am confident did not fall short of £2000 sterling; and it was generally supposed that at least two-thirds of the quantity we had originally got from the Americans were spoiled and worn out, or had been given away or otherwise disposed of in Kamschatka. When, in addition to these facts, it is remembered that the furs were at first collected without our having any idea of their real value; that the greater part had been worn by the Indians from whom we had purchased them; that they were afterward preserved with little care, and frequently used for bed-clothes and other purposes; and that probably we had not received the full value for them in China; the advantages that might be derived from a voyage to that part of the American coast, undertaken with commercial views, appeared to me of a degree of importance sufficient to call for the attention of the public."

A few of the seamen were so deeply impressed with the same conviction that they deserted the ships, and were among the first Englishmen to engage in the Pacific fur trade.

Leaving Canton with replenished purses they finally arrived in safety at the Nore on the 4th of October, 1780, after an absence of four years, two months and twenty-three days. Five men had died on the *Resolution*, three of whom were sickly before leaving England; the *Discovery* had not lost a man.

It was not till the year 1819 that the commander of the brig *William*, sailing southeast from the latitude of Cape Horn, noted in latitude $62^{\circ} 30'$ south, and longitude 60° west an extensive, snow-covered land on the coasts of which seals were abundant. As he was bound with a cargo to Valparaíso he could not follow up his discovery, but on arrival at that port informed the British consul, Captain Sheriff, of the fact he had ascertained, and this official despatched Edward Barnsfield, master of the frigate *Andromache*, to explore the new-found land. It was found to consist of a group of islands, numbering twelve, with innumerable rocky islets between them. There was little doubt that it was a part of the same land sighted by Gerritz more than two centuries before, and now known as the South Shetlands. They were farther explored in 1820 by Mr. Weddell, whose crews obtained an immense number of sea-elephants and fur seals. These islands are nearly inaccessible, being ice-bound, while almost any part of them, other than perpendicular cliffs, is perpetually snow-covered. There are a few small patches of straggling grass where there is any soil, and a moss similar to that found in Iceland. In 1821 other additions were made to our knowledge of islands adjacent to the South Shetlands by Captains Powell and Palmer, the latter an American, and by the Russian navigator, Bellinghausen, who reached a very southern point. They are respectively known as Trinity, Palmer's, and Alexander's Lands. A voyage in 1822 has importance, as it led to valuable results, in a commercial point of view. The brig *Jane*, of Leith, Captain Weddell, with a crew of twenty-two officers and men, accompanied by a cutter, set sail in September of that year on a voyage to the South Seas for the purpose of procuring fur seals. At the beginning of January, 1823 the vessels first came in sight of the land of the high southern latitude, and the next day

reached the South Orkneys. The tops of the islands mostly terminated in craggy peaks, and looked almost like the mountain tops of a sunken land. Proceeding southward, they one evening passed very close to an object which appeared like a rock. The lead was immediately thrown out, but no bottom could be found. It turned out to be a dead whale, very much swollen, floating on the surface. Weddell obtained at South Georgia a valuable cargo. From the sea-elephant no less than 20,000 tons of oil were obtained in a few seasons, the cargoes always including a large number of fur sealskins. American sealers also took large cargoes of these skins to China, where they sold for five or six dollars a skin. The Island of Desolation, described by Cook, was also a source of great profit. "This is a striking, but by no means uncommon example of the commercial advantage to be derived from voyages of discovery." In 1830, Captain Biscoe, commanding the sealing brig *Eliza Scott*, made the discovery of another range of islands, since named after him. In 1839, Captain Balley, in a ship belonging to Messrs. Enderby, the owners of the last-named vessel, discovered land in latitude $66^{\circ} 44' S.$, which was in all probability a portion of the same territory sighted by Wilkes and D'Urville a year afterwards. Thus, while America and France claim the honor of having discovered an "Antarctic continent," Balley seems to have forestalled them. It is extremely doubtful whether the patches of land seen by these explorers can be considered to form a great southern continent.

Captain Dumont D'Urville commanded an expedition despatched by France in 1837 for the express purpose of exploring the Antarctic, and Lieutenant Wilkes, U. S. N., had a similar commission the same year. Wilkes and D'Urville sighted each other's vessels on one occasion, but through a mistake did not communicate.

D'Urville, after describing the "lanes" of tall icebergs by which his ship was enclosed and impeded, states that they sighted land, some few miles off, with prominent peaks 3,000 feet and upwards in height, and surrounded with coast ice. Some boats were sent off to make magnetic observations, and one of the officers succeeded in landing on a small rocky islet, on which the tricolor flag was unfurled. Not the smallest trace of vegetable life could be discovered. Numerous fragments of the rock itself were carried off as trophies.

Close at hand were eight or ten other islets. The land thus discovered was named Adélie Land (after Admiral D'Urville's wife). A projecting cape, which had been seen early in the day, was called Cape Discovery, and the islet on which the landing was effected was named Point Geology.

Wilkes describes his discoveries in similar terms to those of previous explorers already mentioned. Stones, gravel, sand, mud, etc., were noted on a low iceberg, proving the existence of land somewhere about, but it must be borne in mind that a landing on anything but ice was not effected.

An attempt on the part of Captain (afterwards Sir James) Ross to establish magnetic observations in the southern hemisphere was unsuccessful, but resulted in a discovery of importance. On January 11th, 1841, land was sighted, rising in lofty snow-covered peaks, the elevation of some of which was stated to be from 12,000 feet to 14,000 feet. Various peaks were named after Sabine and other distinguished philosophers who had advocated the cause of the expedition. With some difficulty they landed on an island, on which they planted our flag, and drank a toast to the health of the Queen and Prince Albert. It was named Possession Island. There was no vegetation, but "inconceivable myriads of penguins completely and densely covered the whole surface of the island, along the ledges of the precipices, and even to the summits of the hills, attacking us," says Ross, "vigorously as we waded through their ranks, and pecking at us with their sharp beaks, disputing possession; which, together with their loud, coarse notes, and the insupportable stench from the deep bed of guano, which had been forming for ages, and which may at some period be valuable to the agriculturists of our Australasian colonies, made us glad to get away again, after having loaded our boats with geological specimens and penguins." Whales were very numerous: thirty were counted at one time in various directions.

Farther south the interesting discovery was made of an active volcano, a mountain 12,400 feet altitude, emitting flame and smoke at the time. It was named after the Erebus, one of the vessels employed, while a second volcano, scarcely inferior in height to the first-named, was called Mount Terror, after our staunch old friend the vessel which so well withstood the ice in Sir George Back's expedition. "On the afternoon of the 28th," says Ross, "Mount Erebus was observed to

emit smoke and flame in unusual quantities, producing a most grand spectacle; a volume of dense smoke was projected at each successive jet with great force, in a vertical column, to the height of between 1,500 and 2,000 feet above the mouth of the crater, when, condensing first at its upper part, it descended in mist or snow, and gradually dispersed, to be succeeded by another splendid exhibition of the same kind in about half an hour afterwards, although the intervals between the eruptions were by no means regular. The diameter of the columns of smoke was between two and three hundred feet, as near as we could measure it; whenever the smoke cleared away, the bright red flame that filled the mouth of the crater was clearly perceptible; and some of the officers believed they could see streams of lava pouring down its sides until lost beneath the snow, which descended from a few hundred feet below the crater, and projected its perpendicular icy cliff several miles into the ocean."

The whole of the land traced to the seventy-ninth degree of latitude was named Victoria Land. Ross "restored to England the honor of the discovery of the southernmost known land," which had previously belonged to Russia, as won twenty years before by the intrepid Bellinghausen. A second and a third visit was made by Ross, on the latter of which he made some discoveries of minor importance.

CHAPTER II.

THE LIFE OF CAPTAIN JAMES COOK.

The Parents of Captain James Cook—Apprentice to a Haberdasher—On Board of the Ship *Free-Love*—A Common Sailor—Later a *Master*—He enters the Royal British Navy—Master of the *Garland* and the *Mercury*—Taking Soundings of the Channel of the St. Lawrence River and Surveying it—Master of the Man-of-War *Northumberland*—Married—Marine Surveyor of Newfoundland and Labrador—Expedition sent out under Lieutenant Cook to Observe the Transit of Venus—Madeira—Rio Janeiro—Cape Horn—Otaheite—Taking Observations—Leaving Otaheite.

CAPTAIN JAMES COOK had no claim to distinction on account of the lustre of his birth, or the dignity of his ancestors. His father, James Cook, was in the humble station of a servant in husbandry, and married a woman of the same rank with himself, whose Christian name was Grace. Both of them were noted in their neighborhood for their honesty, sobriety, and diligence. They first lived at a village called Morton, and then removed to Marton, another village in the North-riding of Yorkshire. At Marton Captain Cook was born on the 27th of October, 1728, and, agreeably to the custom of the vicar of the parish, whose practice it was to baptize infants soon after their birth, he was baptized on the 3d of November following. The first rudiments of young Cook's education were received by him at Marton, where he was taught to read. When he was eight years of age his father, in consequence of the character he had obtained for industry, frugality, and skill in husbandry, had a little promotion bestowed upon him, which was that of being appointed head servant, or hind, to a farm belonging to the late Thomas Skottow, Esq., called Airy Holme, near Great Ayton. To this place, therefore, he removed with his family, and his son James, at Mr. Skottow's expense, was put to a day school.

Before he was thirteen years of age he was bound an apprentice to Mr. William Sanderson, a haberdasher, or shop-keeper, at Staiths, a considerable fishing town, about ten miles north of Whitby. This employment, however, was very un-

suitable to young Cook's disposition. The sea was the object of his inclination, and his passion for it could not avoid being strengthened by the situation of the town in which he was placed, and the manner of life of the persons with whom he must frequently converse. Some disagreement having happened between him and his master, he obtained his discharge, and soon after bound himself for seven years to John and Henry Walker, of Whitby, principal owners of the ship *Free-love*, and of another vessel, both of which were constantly employed in the coal trade. The greatest part of his apprenticeship was spent on board the *Free-love*. After he was out of his time he continued to serve in the coal and other branches of trade in the capacity of a common sailor, till at length he was raised to be mate of one of Mr. John Walker's ships. During this period it is not recollected that he exhibited anything very peculiar, either in his abilities or his conduct; though there can be no doubt but that he gained a considerable degree of knowledge in the practical part of navigation, and that his attentive and sagacious mind was laying up a store of observations which would be useful to him in future life.

In the spring of the year 1755, when hostilities broke out between England and France, and there was a hot press for seamen, Mr. Cook happened to be in the river Thames with the ship to which he belonged. At first he concealed himself to avoid being pressed; but reflecting that it might be difficult, notwithstanding all his vigilance, to elude discovery or escape pursuit, he determined, upon further consideration, to enter voluntarily into his Majesty's service, and to take his future fortune in the royal navy. Perhaps he had some presage in his own mind that by his activity and exertions he might rise considerably above his present situation. Accordingly he went to a rendezvous at Wapping, and entered with an officer of the *Eagle* man-of-war, a ship of sixty guns, at that time commanded by Captain Hamer. To this ship Captain Palliser was appointed in the month of October, 1755, and when he took the command, found in her James Cook, whom he soon distinguished to be an able, active, and diligent seaman. All the officers spoke highly in his favor, and the captain was so well pleased with his behavior that he gave him every encouragement which lay in his power.

In the course of some time Captain Palliser received a

letter acquainting him that several neighbors of his had solicited him to write in favor of one Cook on board the captain's ship. They had heard that Captain Palliser had taken notice of him, and they requested, if he thought Cook deserving of it, that he would point out in what manner Mr. Osbaldeston might best contribute his assistance towards forwarding the young man's promotion. The captain, in his reply, did justice to Cook's merit; but, as he had only been a short time in the navy, informed Mr. Osbaldeston that he could not be promoted as a commissioned officer. A master's warrant, Captain Palliser added, might perhaps be procured for Cook, by which he would be raised to a station that he was well qualified to discharge with ability and credit.

Such a warrant he obtained on the 10th of May, 1759, for the *Grampus* sloop; but the proper master having unexpectedly returned to her, the appointment did not take place. Four days after he was made master of the *Garland*, when, upon inquiry, it was found that he could not join her, as the ship had already sailed. On the next day, the 15th of May, he was appointed to the *Mercury*.

The destination of the *Mercury* was to North America, where she joined the fleet under the command of Sir Charles Saunders, which, in conjunction with the land forces under General Wolfe, was engaged in the famous siege of Quebec. During that siege a difficult and dangerous service was necessary to be performed. This was to take the soundings in the channel of the river St. Lawrence between the island of Orleans and the north shore, directly in front of the French fortified camp at Montmorency and Beauport, in order to enable the admiral to place ships against the enemy's batteries, and to cover the army on a general attack, which the heroic Wolfe intended to make on the camp. Captain Palliser, in consequence of his acquaintance with Cook's sagacity and resolution, recommended him to the service; and he performed it in the most complete manner. In this business he was employed during the night-time for several nights together. At length he was discovered by the enemy, who collected a great number of Indians and canoes in a wood near the water-side, which were launched in the night for the purpose of surrounding him and cutting him off. On this occasion he had a very narrow escape. He was obliged to run for it, and pushed on shore on the island of Orleans, near the guard

received a



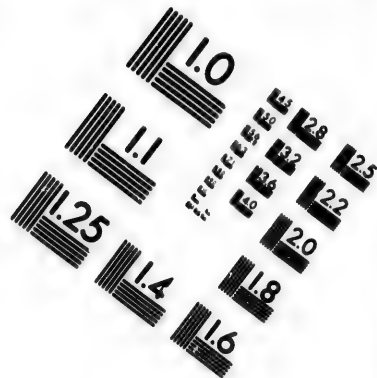
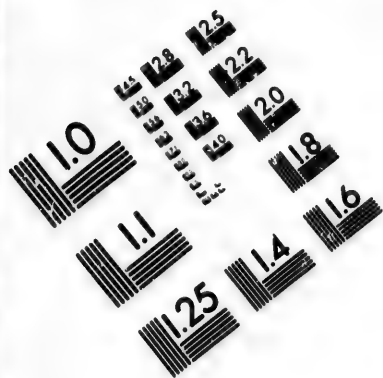
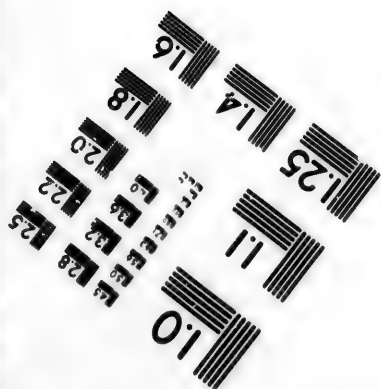
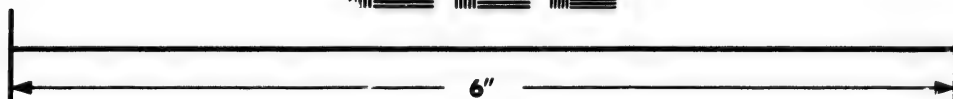
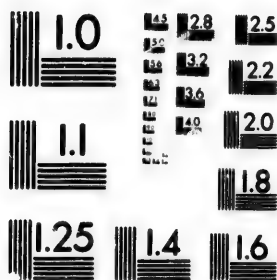


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of the English hospital. Some of the Indians entered at the stern of the boat as Cook leaped out at the bow, and the boat, which was a barge belonging to one of the ships of war, was carried away in triumph. However, he furnished the admiral with a correct and complete draught of the channel and soundings.

Another important service was performed by Cook while the fleet continued in the river St. Lawrence. The navigation of that river is exceedingly difficult and hazardous. It was particularly so to the English, who were then in a great measure strangers to this part of North America, and who had no chart on the correctness of which they could depend. It was, therefore, ordered by the Admiral that Cook should be employed to survey those parts of the river, below Quebec, which navigators had experienced to be attended with peculiar difficulty and danger; and he executed the business with the same diligence and skill of which he had already afforded so happy a specimen. When he had finished the undertaking his chart of the river St. Lawrence was published, with soundings, and directions for sailing in that river.

After the expedition at Quebec, Cook, by warrant from Lord Colvill, was appointed, on the 22d of September, Master of the Northumberland man-of-war, the ship in which his lordship stayed, in the following winter, as Commodore, with the command of a squadron at Halifax. In this station Cook's behavior did not fail to gain him the esteem and friendship of his commander. During the leisure which the season of winter afforded him he employed his time in the acquisition of such knowledge as eminently qualified him for future service. It was at Halifax that he first applied himself to the study of astronomy and other branches of science.

While Cook was Master of the Northumberland under Lord Colvill, that ship came to Newfoundland, in September, 1762, to assist in the recapture of the island from the French, by the forces under the command of Lieutenant-Colonel Amherst. When the island was recovered the English fleet stayed some days at Placentia, in order to put it in a more complete state of defence. During this time Cook manifested a diligence in surveying the harbor and heights of the place, which arrested the notice of Admiral Graves, Commander of the Antelope, and Governor of Newfoundland.

The Governor was hence induced to ask Cook a variety of questions, from the answers to which he was led to entertain a very favorable opinion of his abilities. This opinion was increased the more he saw of Cook's conduct; who, wherever they went, continued to display the most unremitting attention to every object that related to the knowledge of the coast, and which was calculated to facilitate the practice of navigation.

In the latter end of 1762 Cook returned to England; and, on the 21st of December, in the same year, married, at Barking in Essex, Miss Elizabeth Batts, an amiable and deserving woman, who was justly entitled to, and enjoyed his tenderest regard and affection. But his station in life, and the high duties to which he was called, did not permit him to partake of matrimonial felicity without many and very long interruptions.

Early in the year 1763, after the peace with France and Spain was concluded, it was determined that Captain Graves should go out again, as Governor of Newfoundland. As the country was very valuable in a commercial view, and had been an object of great contention between the English and the French, the captain obtained an establishment for the survey of its coasts; which, however, he procured with some difficulty, because the matter was not sufficiently understood by the British Government. In considering the execution of the plan, Cook appeared to Captain Graves to be a proper person for the purpose; and proposals were made to him, to which he readily acceded. Accordingly he went out with the captain as surveyor; and was first employed to survey Miquelon and St. Pierre, which had been ceded by the treaty to the French, who, by order of administration, were to take possession of them at a certain period. When Captain Graves had reached that part of the world he found there the governor who had been sent from France, with all the settlers and his own family, on board a frigate and some transports. It was contrived, however, to keep them in that disagreeable situation for a whole month, which was the time taken by Cook to complete his survey. When the business was finished the French were put into possession of the two islands, and left in the quiet enjoyment of them, with every profession of civility.

At the end of the season Cook returned to England,

but did not long continue at home. In the beginning of the year 1764 his old and constant friend and patron, Sir Hugh Palliser, was appointed Governor and Commodore of Newfoundland and Labrador; upon which occasion he was glad to take Cook with him, in the same capacity that he had sustained under Captain Graves. Indeed, no man could have been found who was better qualified for finishing the design which had been begun in the preceding year. The charts of the coasts, in that part of North America, were very erroneous; and it was highly necessary to the trade and navigation that new ones should be formed, which would be more correct and useful. Accordingly, under the orders of Commodore Palliser, Cook was appointed, on the 18th of April, 1764, Marine Surveyor of Newfoundland and Labrador; and he had a vessel, the Grenville schooner, to attend him for that purpose. How well he executed his commission is known to every man acquainted with navigation. The charts, which he afterwards published of the different surveys he had made, reflected great credit on his abilities and character, and the utility of them is universally acknowledged. It is understood that, so far as Newfoundland is concerned, they were of considerable service to the king's ministers, in settling the terms of the last peace. Cook explored the inland parts of this island in a much completer manner than had ever been done before. By penetrating farther into the middle of the country than any man had hitherto attempted he discovered several large lakes, which are indicated upon the general chart. In these services Cook appears to have been employed, with the intervals of occasionally returning to England for the winter season, till the year 1767, which was the last time that he went out upon his station of Marine Surveyor of Newfoundland.

The invention of the compass, seconded by the ardent and enterprising spirit of several able men, was followed by wonderful discoveries. Vasco di Gama doubled the Cape of Good Hope and a new way being thus found out to the East Indies, the countries in that part of the earth became more accurately and extensively known. Another world was discovered by Columbus; and, at length, Magalhaens accomplished the arduous and hitherto unattempted task of sailing round the globe. At different periods he was succeeded by other circumnavigators, of whom it is no part of the present narrative to give an account.

The spirit of discovery, which was so vigorous during the latter end of the fifteenth and through the whole of the sixteenth century, began, soon after the commencement of the seventeenth century, to decline. Great navigations were only occasionally undertaken, and more from the immediate views of avarice or war, than from any noble and generous principles. But of late years they have been revived, with the enlarged and benevolent design of promoting the happiness of the human species.

A beginning of this kind was made in the reign of King George the Second, of England, during which two voyages were performed; the first under the command of Captain Middleton, and the next under the direction of Captains Smith and Moore, in order to discover a Northwest passage, through Hudson's Bay. It was reserved, however, for the glory of his successor to carry the spirit of discovery to its height.

No sooner was peace restored, in 1763, than these laudable designs engaged the King's patronage; and two voyages round the world had been undertaken, before Cook set out on his first command. The conductors of these voyages were the Captains Byron, Wallis and Carteret, by whom several discoveries were made, which contributed, in no small degree, to increase the knowledge of geography and navigation. Nevertheless, as the purpose for which they were sent out appears to have had a principal reference to a particular object in the South Atlantic, the direct track they were obliged to hold, on their way homeward by the East Indies, prevented them from doing so much as might otherwise have been expected towards giving the world a complete view of that immense expanse of ocean which the South Pacific comprehends.

Before Captain Wallis and Captain Carteret had returned to Great Britain, another voyage was resolved upon, for which the improvement of astronomical science afforded the immediate occasion. It having been calculated by astronomers that a transit of Venus over the sun's disk would happen in 1769, it was judged that the best place for observing it would be in some part of the South Sea, either at the Marquesas, or at one of those islands which Tasman had called Amsterdam, Rotterdam and Middleburg, and which are now better known under the appellation of the Friendly Islands. This

being a matter of eminent consequence in astronomy, and which excited the attention of foreign nations as well as of our own, the affair was taken up by the Royal Society, with the zeal which has always been displayed by that learned body for the advancement of every branch of philosophical science. Accordingly, a long memorial was addressed to his majesty, dated February the 15th, 1768, representing the great importance of the object, together with the regard which had been paid to it by the principal courts of Europe; and entreating, among other things, that a vessel might be ordered, at the expense of government, for the conveyance of suitable persons, to make the observation of the transit of Venus at one of the places before mentioned. This memorial having been laid before the King by the Earl of Shelburne, one of the principal Secretaries of State, his majesty graciously signified his pleasure to the Lords Commissioners of the Admiralty, that they should provide a ship for carrying over such observers as the Royal Society should judge proper to send to the South Seas; and, on the 3d of April, Mr. Stephens informed the Society that a bark had been taken up for the purpose.

The man who had originally been fixed upon to take the direction of the expedition was Alexander Dalrymple, an eminent member of the Royal Society, and who, besides possessing an accurate knowledge of astronomy, had distinguished himself by his inquiries into the geography of the Southern Oceans, and by the collection he had published of several voyages to those parts of the world. Dalrymple being sensible of the difficulty, or rather of the impossibility, of carrying a ship through unknown seas, the crew of which were not subject to the military discipline of his Majesty's Navy, he made it the condition of his going that he should have a brevet commission as captain of the vessel, in the same manner as such a commission had been granted to Dr. Halley in his voyage of discovery. To this demand Sir Edward Hawke, who was then at the head of the Admiralty, and who possessed more of the spirit of his profession than either of education or science, absolutely refused to accede. He said at the board that his conscience would not allow him to trust any ship of his Majesty's to a person who had not regularly been bred a seaman. On being further pressed upon the subject, Sir Edward declared that he would suffer

his right hand to be cut off before he would sign any such commission. In this he was, in some degree, justified by the mutinous behavior of Halley's crew, who refused to acknowledge the legal authority of their commander and involved him in a dispute which was attended with pernicious consequences. Mr. Dalrymple, on the other hand, was equally steady in requiring a compliance with the terms he had proposed. Such was the state of things when Mr. Stephens, Secretary of the Admiralty, whose discrimination of the numerous characters, with which by his station he is conversant, reflects as much credit on his understanding as his upright and able conduct does on the office he has filled for so many years and under so many administrations, with honor to himself and advantage to the public, observed to the board that, since Sir Edward Hawke and Mr. Dalrymple were equally inflexible, no method remained but that of finding out another person capable of the service. He knew, he said, a Mr. Cook, who had been employed as Marine Surveyor of Newfoundland, who had been regularly educated in the Navy, in which he was a master, and whom he judged to be fully qualified for the direction of the present undertaking. Mr. Stephens, at the same time, recommended it to the board to take the opinion of Sir Hugh Palliser, who had lately been Governor of Newfoundland, and was intimately acquainted with Cook's character. Sir Hugh rejoiced in the opportunity of serving his friend. He strengthened Mr. Stephens' recommendation to the utmost of his power, and added many things in Cook's favor, arising from the particular knowledge which he had of his abilities and merit. Accordingly Cook was appointed to the command of the expedition by the Lords of the Admiralty; and, on this occasion, he was promoted to the rank of a Lieutenant in the Royal Navy, his commission bearing date on the 25th of May, 1768.

When the appointment had taken place the first object was to provide a vessel adapted to the purposes of the voyage. This business was committed to Sir Hugh Palliser, who took Lieutenant Cook to his assistance, and they examined together a great number of the ships which then lay in the river Thames. At length they fixed upon one of three hundred and seventy tons, to which was given the name of the *Endeavor*.

While preparations were making for Lieutenant Cook's expedition, Captain Wallis returned from his voyage around the world. The Earl of Morton, President of the Royal Society, had recommended it to this gentleman, on going out, to fix upon a proper place for observation of the transit of Venus. He kept, accordingly, the object in view, and having discovered, in the course of his enterprise, an island, called by him George's Island (Otaheite), he judged that Port Royal harbor in this island would afford an eligible situation for the purpose: Having, immediately on his return to England, signified his opinion to the Earl of Morton, the captain's idea was adopted by the society, and an answer conformable to it was sent to the Commissioners of the Admiralty, who had applied for directions to what place the observers should be sent.

Mr. Charles Green, a gentleman who had long been assistant to Dr. Bradley at the royal observatory at Greenwich, was united with Lieutenant Cook in conducting the astronomical part of the voyage; and, soon after their appointment, they received ample instructions from the Council of the Royal Society with regard to the method of carrying on their inquiries.

Though it was the principal it was not the sole object of Lieutenant Cook's voyage to observe the transit of Venus. A more accurate examination of the Pacific Ocean was committed to him, although in subserviency to his main design; and, when his chief business was accomplished, he was directed to proceed in making further discoveries in the great Southern seas.

The complement of Lieutenant Cook's ship consisted of eighty-four persons, besides the commander. Her victualling was for eighteen months, and there were put on board of her ten carriage and twelve swivel guns, together with an ample store of ammunition and other necessities.

On May 25th, 1768, Lieutenant Cook was appointed by the Lords of the Admiralty to the command of the Endeavor, in consequence of which he went on board on the 27th and took charge of the ship. She then lay in the basin in Deptford-yard, where she continued to lie till she was completely fitted for sea. On the 30th of July she sailed down the river, and on the 13th of August anchored in Plymouth Sound. The wind becoming fair on the 26th of that month, the navi-

gators got under sail, and on the 13th of September anchored in Funchal Road in the island of Madeira.

It was not solely from the English that the Lieutenant and his friends experienced a kind reception. The fathers of the Franciscan convent displayed a liberality of sentiment towards them which might have not been expected from Portuguese friars, and in a visit which they paid to a convent of nuns, the ladies expressed a particular pleasure in seeing them.

Lieutenant Cook, having laid in a fresh stock of beef, water and wine, set sail from the island of Madeira in the night of the 18th of September and proceeded on his voyage. By the 7th of November several articles of the ship's provisions began to fall short, for which reason the lieutenant determined to put into Rio de Janeiro. This place he preferred to any other port in Brazil or to Falkland Islands, because he could there be better supplied with what he wanted, and had no doubt of meeting with a friendly reception.

At Rio de Janeiro, in the port of which Lieutenant Cook came to anchor on the 13th of November, he did not meet with the polite reception that, perhaps, he had too sanguinely expected. His stay was spent in continual altercations with the Viceroy, who appeared not a little jealous of the designs of the English.

During the whole of the contest with the Viceroy, Lieutenant Cook behaved with equal spirit and discretion. A supply of water and other necessities could not be refused him, and these were gotten on board by the 1st of December. On that day the lieutenant sent to the Viceroy for a pilot to carry the Endeavor to sea; but the wind preventing the ship from getting out, she was obliged to continue some time longer in the harbor. A Spanish packet having arrived at Rio de Janeiro on the 2d of December, with despatches from Buenos Ayres for Spain, the commander offered to convey the letters of the English to Europe. This favor Lieutenant Cook accepted, and gave him a packet for the Secretary of the Admiralty, containing copies of all the papers that had passed between himself and the Viceroy. He left, also, duplicates with the Viceroy, that he might forward them, if he thought proper, to Lisbon.

On the 5th of December, it being a dead calm, the navigators weighed anchor and towed down the bay; but, to their

great astonishment, two shots were fired at them when they had gotten abreast of Santa Cruz, the principal fortification of the harbor. Lieutenant Cook immediately cast anchor and sent to the fort to demand the reason of this conduct, the answer to which was that the commandant had received no order from the Viceroy to let the ship pass, and that, without such an order, no vessel was ever suffered to go below the fort. It now became necessary to the Viceroy to inquire why the order had not been given, and his behavior appeared the more extraordinary as notice had been transmitted to him of the departure of the English and he had thought proper to write a polite letter to Cook, wishing him a good voyage. The lieutenant's messenger soon returned, with the information that the order had been written several days and that its not having been sent had arisen from some unaccountable negligence. It was not till the 7th of December that the Endeavor got under sail.

From Rio de Janeiro Lieutenant Cook pursued his voyage, and, on the 14th of January, 1769, entered the Strait of Le Maire, at which time the tide drove the ship out with so much violence and raised such a sea off Cape St. Diego, that she frequently pitched, so that the bowsprit was under water. On the next day the lieutenant anchored, first before a small cove, which was understood to be Port Maurice, and afterwards in the Bay of Good Success. While the Endeavor was in this station, happened the memorable adventure of Mr. Banks, Dr. Solander, Monkhouse, the surgeon, and Mr. Green, the astronomer, together with their attendants and servants, and two seamen, in ascending a mountain to search for plants. In this expedition they were all of them exposed to the utmost extremity of danger and of cold; Dr. Solander was seized with a torpor which had nearly proved fatal to his life; and two black servants actually died. When the men had, at length, on the second day of their adventure, gotten back to the ship, they congratulated each other on their safety, with a joy that can only be felt by those who have experienced equal perils; and Lieutenant Cook was relieved from a very painful anxiety.

In the passage through the Strait of Le Maire, Lieutenant Cook and his ingenious associates had an opportunity of gaining a considerable degree of acquaintance with the inhabitants of the adjoining country. Here it was that they saw

human nature in its lowest form. The natives appeared to be the most destitute and forlorn, as well as the most stupid of the children of men. Their lives were spent in wandering about the dreary wastes that surround them; and their dwellings were no other than wretched hovels of sticks and grass, which not only admitted the wind, but the snow and the rain. They were almost naked; and so devoid were they of every convenience which is furnished by the rudest art, that they had not so much as an implement to dress their food. Nevertheless, they seemed to have no wish for acquiring more than they possessed; nor did anything that was offered them appear acceptable but beads, as an ornamental superfluity of life.

In voyages to the South Pacific Ocean, the determination of the best passage from the Atlantic is a point of peculiar importance. It is well known what prodigious difficulties were experienced in this respect by former navigators. The doubling of Cape Horn, in particular, was so much dreaded, that, in the general opinion, it was far more eligible to pass through the Strait of Magalhaens. Lieutenant Cook fully ascertained the erroneousness of this opinion. He was but three-and-thirty days in coming round the land of Terra del Fuego, from the east entrance of the Strait of Le Maire, till he had advanced about twelve degrees to the westward and three and a half to the northward of the Strait of Magalhaens; and, during this time, the ship scarcely received any damage. Whereas, if he had come into the Pacific Ocean by that passage, he would not have been able to accomplish it in less than three months; besides which, his people would have been fatigued, and the anchors, cables, sails, and rigging of the vessel much injured. By the course he pursued, none of these inconveniences were suffered. In short, Lieutenant Cook, by his own example in doubling Cape Horn, by his accurate ascertainment of the latitude and longitude of the places he came to, and by his instructions to future voyagers performed the most essential services to this part of navigation.

It was on the 26th of January that the Endeavor took her departure from Cape Horn.

In the prosecution of Lieutenant Cook's voyage from Cape Horn to Otaheite several islands were discovered, to which the names were given of Lagoon Island, Thrumb-cap, Bow

Island, The Groups, Bird Island, and Chain Island. It appeared that most of these islands were inhabited; and the verdure and groves of palm-trees which were visible upon some of them, gave them the aspect of a terrestrial Paradise to men who, excepting the dreary hills of Terra del Fuego, had seen nothing for a long time but sky and water.

On the 11th of April the Endeavor arrived in sight of Otaheite, and on the 13th she came to an anchor in Port Royal Bay.

One of the first things that occupied the Lieutenant's attention, after his arrival at Otaheite, was to prepare for the execution of his grand commission. For this purpose, as in an excursion to the westward, he had not found any more convenient harbor than that in which the Endeavor lay, he determined to go on shore and fix upon some spot, commanded by the guns of the ship, where he might throw up a small fort for defence, and get everything ready for making the astronomical observation. Accordingly, he took a party of men and landed, being accompanied by Banks, Dr. Solander, and Green. They soon fixed upon a place very proper for their design, and which was at a considerable distance from any habitation of the natives. While they were marking out the ground which they intended to occupy, and seeing a small tent erected that belonged to Mr. Banks, a great number of the people of the country gathered gradually around them, but with no hostile appearance, as there was not among the Indians a single weapon of any kind. Cook, however, intimated that none of them were to come within the line he had drawn, excepting one, who appeared to be a chief, and Owahaw, a native who had attached himself to the voyagers, both in Captain Wallis' expedition and in the present voyage.

This matter being finished, and Cook having appointed thirteen marines and a petty officer to guard the tent, he and the men set out upon a little excursion into the woods of the country. They had not, however, gone far, before they were brought back by a very disagreeable event. One of the Indians, who remained about the tent after the Lieutenant and his friends had left it, watched an opportunity of taking the sentry at unawares, and snatched away his musket. Upon this, the petty officer who commanded the party, and who was a midshipman, ordered the marines to fire. With equal want of consideration, and, perhaps, with equal inhumanity,

the men immediately discharged their pieces among the thickest of the flying crowd, who consisted of more than a hundred. It being observed that the thief did not fall, he was pursued and shot dead. From subsequent information it happily appeared that none of the natives were killed or wounded, with the exception of the individual already mentioned.

Lieutenant Cook, who was highly displeased with the conduct of the petty officer, used every method in his power to dispel the terrors and apprehensions of the Indians, but not immediately with effect. The next morning but few of the inhabitants were seen upon the beach, and not one of them came off to the ship. What added particularly to the regret of the English was that even Owhaw, who had hitherto been so constant in his attachment, and who the day before had been remarkably active in endeavoring to renew the peace which had been broken, did not now make his appearance. In the evening, however, when the lieutenant went on shore with only a boat's crew and some of the gentlemen, between thirty and forty of the natives gathered around them, and trafficked with them in a friendly manner for cocoanuts and other fruit.

On the 17th Cook and Green set up a tent on shore and spent the night there, in order to observe an eclipse of the first satellite of Jupiter; but they met with a disappointment, in consequence of the weather's becoming cloudy. The next day, the lieutenant, with as many of his crew as could possibly be spared from the ship, began to erect the fort.

On the 26th the lieutenant mounted six swivel guns upon the fort, on which occasion he saw that the natives were alarmed and terrified. Some fishermen, who lived upon the point, removed to a greater distance; and Owhaw informed the English, by signs, of his expectation that in four days they would fire their great guns.

The lieutenant, on the succeeding day, gave a striking proof of his regard to justice, and of his care to preserve the inhabitants from injury and violence, by the punishment he inflicted on the butcher of the Endeavor, who was accused of having threatened or attempted the life of a woman that was the wife of Tubourai Tomaide, a chief remarkable for his attachment to the navigators. The butcher wanted to pur-

chase of her a stone hatchet for a nail. To this bargain she absolutely refused to accede; upon which the fellow caught up the hatchet and threw down the nail, threatening, at the same time, that if she made any resistance, he would cut her throat with a reaping-hook which he had in his hand. The charge was so fully proved in the presence of Banks, and the butcher had so little to say in exculpation of himself, that not the least doubt remained of his guilt. The affair being reported by Banks to Lieutenant Cook, he took an opportunity, when the chief and his women with others of the natives were on board the ship, to call up the offender, and, after recapitulating the accusation and the proof of it, to give orders for his immediate punishment. While the butcher was stripped and tied up to the rigging, the Indians preserved a fixed attention, and waited for the event in silent suspense. But as soon as the first stroke was inflicted, such was the humanity of these people, that they interfered with great agitation, and earnestly entreated that the rest of the punishment might be remitted. To this, however, the lieutenant for various reasons could not grant his consent; and, when they found that their intercessions were ineffectual, they manifested their compassion by tears.

On the first of May the observatory was set up, and the astronomical instruments were taken on shore. When, on the next morning, Cook and Green landed for the purpose of fixing the quadrant in a situation for use, to their inexpressible surprise and concern it was not to be found. It had been deposited in a tent reserved for the Lieutenant's use, where no one had slept; it had never been taken out of the packing-case, and the whole was of considerable weight; none of the other instruments were missing; and a sentinel had been posted the whole night within five yards of the tent. These circumstances induced a suspicion that the robbery might have been committed by some of the crew, who having seen a deal box, and not knowing the contents, might imagine that it contained nails, or other articles for traffic with the natives. The most diligent search, therefore, was made, and a large reward was offered for the finding of the quadrant, but with no degree of success. In this exigency Banks was of eminent service. As he had more influence over the Indians than any other person on board the Endeavor, and as there could now be little doubt of the quadrant's having

been conveyed away by some of the natives, he determined to go in search of it into the woods; and it was recovered in consequence of his judicious and spirited exertions. The pleasure with which it was brought back was equal to the importance of the event; for the grand object of the voyage could not otherwise have been accomplished.

The Lieutenant and the rest of the men had hitherto, with a laudable discretion, bartered only beads for articles of food. But the market becoming slack they were obliged for the first time, on the eighth of May, to bring out their nails; and such was the effect of this new commodity, that one of the smallest size, which was about four inches long, procured twenty coconuts and bread-fruit in proportion.

It was not till the tenth of the month that the voyagers learned that the Indian name of the island was Otaheite.

As the day approached for executing the grand purpose of the voyage, Lieutenant Cook determined, in consequence of some hints which he had received from the Earl of Morton, to send out two parties to observe the transit of Venus from other situations. By this means he hoped that the success of the observation would be secured, if there should happen to be any failure at Otaheite. Accordingly, on Thursday, the first of June, he despatched Lieutenant Gore in the long-boat to Eimeo, a neighboring island, together with Monkhouse and Sporing. They were furnished by Green with proper instruments. Banks himself chose to go upon this expedition, in which he was accompanied by Tubourai Tamaide and Tomio, and by others of the natives. Early the next morning the Lieutenant sent Hicks, in the pinnace, with Clerk, Pickersgill and Saunders, one of the midshipmen, ordering them to fix upon some convenient spot to the eastward, at a distance from the principal observatory, where they also might employ the instruments they were provided with for observing the transit.

The anxiety for such weather as would be favorable to the success of the experiment was powerfully felt by all the parties concerned. They could not sleep in peace the preceding night; but their apprehensions were happily removed by the sun's rising, on the morning of the third of June, without a cloud. The weather continued with equal clearness through the whole of the day; so that the observation was successfully made in all quarters.

To extend the knowledge of navigation and the sphere of discovery, objects which Lieutenant Cook kept steadily in view, he set out, in the pinnace, on the twenty-sixth of June, accompanied by Banks, to make the circuit of the island. By this expedition Cook obtained an acquaintance with the several districts of Otaheite, the chiefs who presided over them, and a variety of curious circumstances respecting the manners and customs of the inhabitants. On the first of July he got back to the fort at Matavai, having found the circuit of the island, including the two peninsulas of which it consisted, to be about thirty leagues.

The circumnavigation of Otaheite was followed by an expedition of Banks to trace the river up the valley from which it issues, and examine how far its banks were inhabited.

Lieutenant Cook now began to prepare for his departure. On the seventh of July the carpenters were employed in taking down the gates and pallisadoes of the fortification; and it was continued to be dismantled during the two following days. The commander was in hopes that he should quit Otaheite without giving or receiving any further offence; but in this respect he was unfortunately disappointed. The Lieutenant had prudently overlooked a dispute of a smaller nature between a couple of foreign seamen and some of the Indians, when he was immediately involved in a quarrel which he greatly regretted, and which yet it was totally out of his power to avoid. In the middle of the night, between the eighth and the ninth, two of the marines went privately from the fort. As they were not to be found in the morning, Cook was apprehensive that they intended to stay behind; but, being unwilling to endanger the harmony and good-will which at present subsisted between the crew and the natives, he determined to wait a day for the chance of the men's return. As, to the great concern of the Lieutenant, the marines were not back on the morning of the tenth, inquiry was made after them of the Indians, who acknowledged that each of them had taken a wife, and had resolved to become inhabitants of the country. After some deliberation two of the natives undertook to conduct such persons to the place of the deserters' retreat as Cook should think proper to send; and accordingly he despatched with the guides a petty officer, and the corporal of the marines. As it was of the utmost importance

to recover the men, and to do it speedily, it was intimated to several of the chiefs who were in the fort with the women, among whom were Tubourai Tomaide, Tomio and Oberea, that they would not be permitted to leave it till the fugitives were returned; and the Lieutenant had the pleasure of observing that they received the intimation with very little indications of alarm, and with assurances that the men should be secured and sent back as soon as possible. While this transaction took place at the fort, Lieutenant Cook sent Hicks in the pinnace to fetch Tootahah on board the ship. Cook had reason to expect, if the Indian guides proved faithful, that the deserters, and those who went in search of them, would return before the evening. Being disappointed his suspicions increased, and thinking it not safe, when the night approached, to let the persons whom he had detained as hostages continue at the fort, he ordered Tubourai Tomaide, Oberea and some others, to be taken on board the Endeavor; a circumstance which excited so general an alarm that several of them, and especially the women, expressed their apprehensions with great emotion and many tears. Webb, one of the ship's crew, about nine o'clock, was brought back by some of the natives, who declared that Gibson, and the petty officer and corporal, would not be restored till Tootahah should be set at liberty.

Lieutenant Cook now found that the tables were turned upon him; but, having proceeded too far to retreat, he immediately despatched Hicks in the long-boat, with a strong party of men, to rescue the prisoners. Tootahah was at the same time informed that it behooved him to send some of his people with them for the purpose of affording them effectual assistance. With this injunction he readily complied, and the prisoners were restored without the least opposition. On the next day they were brought back to the ship, upon which the chiefs were released from their confinement. Thus ended an affair which had given the lieutenant a great deal of trouble and concern. It appears, however, that the measure which he pursued was the result of an absolute necessity; since it was only by seizure of the chiefs that he could have recovered his men. So strong was the attachment which the two marines had formed to a couple of girls that it was their design to conceal themselves till the ship had sailed and to take up their residence in the island.

Tupia was one of the natives who had so particularly devoted himself to the expedition that he had scarcely been absent during the whole of their stay at Otaheite. This man had often expressed a desire to go with the navigators, and when they were ready to depart he came on board with a boy about thirteen years of age and entreated that he might be permitted to proceed with them on their voyage. To have such a person on the Endeavor was desirable on many accounts, and therefore Lieutenant Cook gladly acceded to his proposal.

On the 13th of July Lieutenant Cook weighed anchor, and as soon as the ship was under sail the Indians on board took their leave and wept.

The stay of the voyagers at Otaheite was three months, the greater part of which time was spent in the most cordial friendship with the inhabitants and a perpetual reciprocation of good offices.

While the Endeavor proceeded on her voyage under an easy sail, Tupia informed Lieutenant Cook that at four of the neighboring islands, which he distinguished by the names of Huaheine, Ulietea, Otaha and Bolabola, hogs, fowls and other refreshments, which had latterly been sparingly supplied at Otaheite, might be procured. The lieutenant, however, was desirous of first examining an island that lay on the northward and was called Tethuroa. Accordingly he came near it, but having found it to be only a small low island and being told at the same time that it had no settled inhabitants, he determined to drop any further examination of it and to go in search of Huaheine and Ulietea, which were described to be well peopled and as large as Otaheite.

The Endeavor on the 16th of July being close in with the northwest part of Huaheine, some of the natives came off the shore in the direction of the ship. In one of the canoes was the king of the island and his wife. At first the people seemed afraid; but, upon seeing Tupia, their apprehensions were in part dispersed, and at length, in consequence of frequent and earnestly-repeated assurances of friendship, their Majesties and several others ventured on board the ship. Their astonishment at everything which was shown them was very great, and yet their curiosity did not extend to any objects but what were particularly pointed out to their notice. In the afternoon, the Endeavor having come to an anchor in

a small but excellent harbor on the west side of the island, the name of which was Owharre, Cook, accompanied by Mr. Banks, Dr. Solander, Mr. Monkhouse, Tupia and the natives who had been on board ever since the morning, immediately went on shore and repeated their excursions on the two following days, in the course of which they found that the people of Huaheine had a very near resemblance to those of Otaheite, in person, dress, language and every other circumstance; that the productions of the country were exactly similar.

Tupia had expressed his apprehension that the navigators, if they landed upon the island, would be exposed to the attacks of the men of Bolabola, whom he represented as having lately conquered it and of whom he entertained a very formidable idea. This, however, did not deter Lieutenant Cook and the others from going immediately on shore. Tupia, who was of the party, introduced the party by performing some ceremonies which he had practised before at Huaheine. After this the lieutenant hoisted a flag, and, in the name of his Britannic Majesty, took possession of Ulietea and the three neighboring islands, Huaheine, Otaha, and Bolabola, all of which were in sight.

From Tupia they learned that there were various islands lying at different distances and in different directions from Oheteroa, between the south and northwest, and that to the northeast was Bird Island. This he represented as being at the distance of three days' sail, but he seemed most desirous that Lieutenant Cook should proceed to the westward, and described several islands in that situation which he had visited. It appeared from his description of them that these were probably Boscawen and Keppel's islands, which were discovered by Captain Wallis. The farthest island that Tupia knew of to the southward lay, he said, at the distance of about two days' sail from Oheteroa and was called Moutou.

On the 15th of August they sailed from Oheteroa, and on the 25th of the same month was celebrated the anniversary of their departure from England. The comet was seen on the 30th. It was a little above the horizon, in the eastern part of the heavens, at one in the morning, and at about half an hour after four it passed the meridian, and its tail subtended an angle of forty-two degrees. Tupia, who was among others that observed the comet, instantly cried out

that as soon as it should be seen by the people of Bolabola they would attack the inhabitants of Ulietea, who would be obliged to endeavor to preserve their lives by fleeing with the utmost precipitation to the mountains.

On the 6th of October, 1769, land was discovered, which appeared to be large. When on the next day it was more distinctly visible it assumed a still larger appearance and displayed four or five ranges of hills, rising one over the other, above all of which was a chain of mountains of an enormous height. This land naturally became the subject of much eager conversation, and the general opinion of all on board the Endeavor was that they had found the *Terra australis incognita*. In fact, it was a part of New Zealand, where the first adventures the men met with were very unpleasant on account of the hostile disposition of the inhabitants.

Lieutenant Cook, having anchored on the 8th in a bay at the entrance of a small river, went on shore in the evening, accompanied by Mr. Banks and Dr. Solander and attended with a party of men. Being desirous of conversing with some natives whom he had observed on the opposite side of the river from that on which he landed, he ordered the yawl in to carry himself and his companions over and left the pinnace at the entrance. When they came near the place where the Indians were assembled the latter all ran away, having left four sailors to take care of the yawl, walked up to several huts which were about two or three hundred yards from the water side. They had not gone very far when four men, armed with long lances, rushed out of the woods, and running up to attack the boat, would certainly have cut her off if they had not been discovered by those in the pinnace, who called to the sailors to drop down the stream. They instantly obeyed, but being closely pursued by the natives the cockswain of the pinnace, to whom the charge of the boats was committed, fired a musket over their heads. At this they stopped and looked around them; but, their alarm speedily subsiding, they brandished their lances in a threatening manner, and in a few minutes renewed the pursuit. The firing of a second musket over their heads did not draw from them any kind of notice. At last, one of them having lifted up his spear to dart it at the boat, another piece was fired, by which he was shot dead. At the fall of their associate the three remaining Indians stood for a while motionless and seemed

petrified with astonishment. No sooner had they recovered themselves than they went back, dragging the dead body after them. Lieutenant Cook and his friends, who had straggled a little distance from each other, were drawn together upon the report of the first musket and returned speedily to the boat, in which having crossed the river, they soon beheld the Indian lying dead upon the ground.

The lieutenant being desirous of establishing an intercourse with the natives, ordered, on the following day, three boats to be manned with seamen and marines, and proceeded towards the shore, accompanied by Mr. Banks, Dr. Solander, Tupia and others. About fifty of the inhabitants seemed to wait for their landing, having seated themselves upon the ground on the opposite side of the river. This being regarded as a sign of fear Lieutenant Cook, Dr. Solander, and Tupia advanced towards them; but they had not gone many paces before all the Indians started up, and every man produced either a long pike, or a small weapon of green talk. Though Tupia called to them in the language of Otaheite, they only answered by flourishing their weapons, and making signs for the men to depart. On a musket being fired wide of them they desisted from their threats, and Lieutenant Cook, who had prudently retreated till the marines could be landed, again advanced towards them, with Mr. Banks, Dr. Solander, and Tupia, to whom were now added Mr. Green and Mr. Monkhouse. Though the natives seemed willing to trade, Tupia was sensible, during the course of his conversation with them, that their intentions were unfriendly, and of this he repeatedly warned the men. At length twenty or thirty of the Indians were induced to cross the river, upon which presents were made them of iron and beads. On these they appeared to set little value, and particularly on the iron, not having the least conception of its use, so that nothing was obtained in return excepting a few feathers. Their arms, indeed, they offered to exchange for those of the voyagers, and this being refused they made various attempts to snatch them out of their hands. Tupia was now instructed to acquaint the Indians that the men would be obliged to kill them if they proceeded to any further violence; notwithstanding, one of them, while Green happened to turn about, seized his hanger, and retired some little distance with a shout of exultation. The others, at the same time, began to be extremely

insolent, and more of the natives were seen coming to join them from the opposite side of the river. It being, therefore, necessary to repress them, Banks fired, with small shot, at the distance of about fifteen yards, upon the man who had taken the hanger. Though he was struck he did not return the hanger, but continued to wave it round his head while he slowly made his retreat. Monkhouse then fired at him with ball and he instantly dropped. So far, however, were the Indians from being sufficiently terrified that the main body of them, who, upon the first discharge, had retired to a rock in the middle of the river, began to return, and it was with no small difficulty that Monkhouse secured the hanger. The whole number of them continuing to advance, three of the party discharged their pieces at them, loaded with small shot, upon which they swam back for the shore, and it appeared, upon their landing, that two or three of them were wounded. While they retired slowly up the country Lieutenant Cook and his companions re-embarked in their boats.

As the lieutenant had unhappily experienced that nothing at this place could be done with these people, and found that the water in the river was salt, he proceeded in the boats round the head of the bay in search of fresh water. Beside this he had formed a design of surprising some of the natives, and taking them on board that, by kind treatment and presents, he might obtain their friendship and render them the instruments of establishing for him an amicable intercourse with their countrymen.

Some further attempts were made to establish an intercourse with the natives. Lieutenant Cook on October 10th went on shore for this purpose; but being unsuccessful in his endeavors he resolved to re-embark. On the next day the lieutenant weighed anchor and stood away from this unfortunate and inhospitable place. As it had not afforded a single article that was wanted, excepting wood, he gave it the name of Poverty Bay. By the inhabitants it is called Taoneroa, or Long Sand. I shall not regularly pursue the course round New Zealand. In this course they spent nearly six months, and made large additions to the knowledge of navigation and geography. By making almost the whole circuit of New Zealand they ascertained it to be two islands with a strength of evidence which no prejudice could gainsay or resist. They obtained, likewise, a full acquaintance with the inhabi-

tants of the different parts of the country, with regard to whom it was clearly proved that they were cannibals.

While the ship was hauling round to the south end of a small island, which the lieutenant had named Portland, from its very great resemblance to Portland in the British Channel, she suddenly fell into shoal water and broken ground. While the ship was in apparent distress the inhabitants of the island, who, in vast numbers, sat on its white cliffs, and could not avoid perceiving some appearance of confusion on board and some irregularity in the working of the vessel, were desirous of taking advantage of her critical situation. Accordingly five canoes, full of men and well armed, were put off with the utmost expedition, and they came so near and showed so hostile a disposition by shouting, brandishing their lances, and using threatening gestures, that the lieutenant was in pain for his small boat, which was still employed in sounding. By a musket, which he ordered to be fired over them, they were rather provoked than intimidated. The firing of a four-pounder loaded with grape-shot, though purposely discharged wide of them, produced a better effect. Upon the report of the piece the Indians all rose up and shouted; but, instead of continuing the chase, they collected themselves together, and, after a short consultation, went quietly away.

On the 14th of October, Lieutenant Cook having hoisted out his pinnace and long-boat to search for water, just as they were about to set off several boats, full of the New Zealand people, were seen coming from the shore. After some time five of these boats, having on board between eighty and ninety men, made towards the ship, and four more followed at no great distance as if to sustain the attack. When the first five had gotten within about a hundred yards of the Endeavor they began to sing their war song, and, brandishing their pikes, prepared for an engagement. As the lieutenant was extremely desirous of avoiding the unhappy necessity of using fire-arms against the natives, Tupia was ordered to acquaint them that the voyagers had weapons which, like thunder, would destroy them in a moment; that they would immediately convince them of their power by directing their effect so that they should not be hurt; but that if they persisted in any hostile attempt they would be exposed to the direct attack of these formidable weapons. A four-pounder, loaded with grape-shot, was then fired wide of them, and this

expedient was fortunately attended with success. The report, the flash, and above all the shot, which spread very far in the water, terrified the Indians to such a degree that they began to paddle away with all their might. At the instance, however, of Tupia the people of one of the boats were induced to lay aside their arms and to come under the stern of the Endeavor; in consequence of which they received a variety of presents.

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CHAPTER III.

CAPTAIN COOK'S VOYAGES.

Hicks Bay—Hostility of the Inhabitants—The Transit of Mercury—Nearly Shipwrecked
—South Cape—Botany Bay—In great Danger—Ship Aleak—Refitting the Ship for Sea
—Attempts to put to Sea—The Pumps decayed—New South Wales—New Guinea—An
Aurora Borealis—A Dutch Settlement—Disease on Board—Loss of thirty Men by Death
—Home again from a Foreign Shore.

WHILE the ship was in Hicks Bay the inhabitants of the adjoining coast were found to be very hostile. This gave them much uneasiness, and was, indeed, contrary to their expectations, for they had hoped that the report of their power and clemency had spread to a greater extent. At daybreak, on the 1st of November, 1769, they counted no less than forty-five canoes that were coming from the shore towards the Endeavor, and these were followed by several more from another place. Some of the Indians traded fairly, but others of them took what was handed down to them without making any return and added derision to fraud.

While Lieutenant Cook was near an island which he called the Mayor, the inhabitants of the neighboring coast displayed many instances of hostility, and in their traffic committed various acts of fraud and robbery. As the lieutenant intended to continue in the place five or six days, in order to make an observation of the transit of Mercury, it was absolutely necessary for the prevention of future mischief to convince these people that they were not to be ill-treated with impunity. Accordingly some small shot were fired at a thief of uncommon insolence, and a musket-ball was discharged through the bottom of his boat. Upon this it was paddled to about a hundred yards distance, and to the surprise of Lieutenant Cook the Indians in the other canoes took not the least notice of their wounded companion, though he bled very much, but returned to the ship and continued to trade with the most perfect indifference and unconcern. For a considerable time they dealt fairly. At last, however, one of them thought

fit to move off with two different pieces of cloth which had been given for the same weapon. When he had gotten to such a distance that he thought himself secure of his prizes a musket was fired after him, which fortunately struck the boat just at the water's edge and made two holes in her side. This excited such an alarm that not only the people who were shot at, but all the rest of the canoes made off with the utmost expedition. As the last proof of superiority, the commander ordered a round shot to be fired over them, and not a boat stopped till they got to land.

After an early breakfast on the 9th of November, Lieutenant Cook went on shore with Mr. Green and proper instruments to observe the transit of Mercury. Mr. Banks and Dr. Solander were of the party. The weather had for some time been very thick, with much rain, but this day proved so favorable that not a cloud intervened during the whole transit. The observation of the ingress was made by Mr. Green alone, Lieutenant Cook being employed in taking the sun's altitude to ascertain the time.

While the men were thus engaged on shore they were alarmed by the firing of a great gun from the ship, and on their return received the following account of the transaction from Second Lieutenant Gore, who had been left commanding officer on board: During the carrying on of a trade with some small canoes two very large ones came up full of men. In one of the canoes were forty-seven persons, all of whom were armed with pikes, stones and darts, and assumed the appearance of a hostile intention. However, after a little time, they began to traffic, some of them offering their arms, and one of them a square piece of cloth, which makes a part of their dress, called a *Haahow*. Lieutenant Gore having agreed for it, sent down the price, which was a piece of British cloth, and expected his purchase. But as soon as the Indian had gotten the cloth in his possession he refused to part with his own, and put off his canoe. Upon being threatened for his fraud, he and his companions began to sing their war song in defiance and shook their paddles. Though their insolence did not proceed to an attack and only defied Gore to take any remedy in his power, he was so provoked that he levelled a musket loaded with ball at the offender, while he was holding the cloth in his hand, and shot him dead. When the Indian fell all the canoes put off to some distance, but

continued to keep together in such a manner that it was apprehended they might still meditate an attack. To secure, therefore, a safe passage for the boat of the Endeavor, which was wanted on shore, a round shot was fired with so much effect over their heads as to make them all flee with the utmost precipitation. It was matter of regret to Lieutenant Cook that they had not, in the case of the offending Indian, tried the experiment of a few small shot, which had been successful in former instances of robbery.

On the 15th Lieutenant Cook sailed out of Mercury Bay. This name had been given to it on account of the observation which had there been made of the transit of that planet over the sun. The river where oysters had been so plentifully found he called Oyster River. There is another river at the head of the bay which is the best and safest place for a ship that wants to stay any length of time. From the number of mangroves about it the lieutenant named it Mangrove River. Before the Endeavor left the bay the ship's name and that of the commander were cut upon one of the trees near the watering-place, together with the date of the year and month when the navigators were there. Besides this Cook, after displaying the English colors, took formal possession of the place in the name of his Britannic Majesty, King George the Third.

The Endeavor, on the 5th of December, was in the most imminent hazard of being wrecked. At four o'clock in the morning of that day the voyagers weighed with a light breeze; but it being variable with frequent calms they made little way. From that time till the afternoon they kept turning out of the bay, and about ten at night were suddenly becalmed, so that the ship could neither wear nor exactly keep her station. The tide or current setting strong she drove toward land so fast that before any measures could be taken for her security she was within a cable's length of the breakers. Though they had thirteen fathoms of water the ground was so foul that they did not dare to drop their anchor. In this crisis, the pinnace being immediately hoisted out to take the ship in tow, and the men, sensible of their danger, exerting themselves to the utmost, a faint breeze sprang up off the land, and they perceived with unspeakable joy that the vessel made headway. So near was she to the shore, that Tupia, who was ignorant of the hairbreadth escape they had ex-

perienced, was at this very time conversing with the Indians upon the beach, whose voices were distinctly heard, notwithstanding the roar of the breakers. Lieutenant Cook now thought that all danger was over; but about an hour afterwards, just as the man in the chains had cried "seventeen fathoms," the ship struck. The shock threw them into the utmost consternation; and almost instantly the man in the chain cried out "five fathoms." By this time, the rock on which the ship had struck being to the windward, she went off without having received the least damage; and the water very soon deepening to twenty fathoms she again sailed in security.

The inhabitants in the Bay of Islands were found to be far more numerous than in any other part of New Zealand which Lieutenant Cook had hitherto visited. It did not appear that they were united under one head; and, though their towns were fortified, they seemed to live together in perfect amity.

The Endeavor, on the 9th of December, lying becalmed in Doubtless Bay, an opportunity was taken to inquire of the natives concerning their country; and they learned from them, by the help of Tupia, that at the distance of three days rowing in their canoes, at a place called Moore-Whennua, the land would take a short turn to the southward, and thence extend no more to the west. This place they concluded to be the land discovered by Tasman, and which had been named by him Cape Maria Van Diemen. The Lieutenant, finding the inhabitants so intelligent, inquired further, if they knew of any country besides their own. To this they answered that they had never visited any other; but that their ancestors had told them that there was a country of great extent, to the northwest by north, or north-northwest, called Ulimaroa.

On the 30th of December they saw the land, which they judged to be Cape Maria Van Diemen, and which corresponded with the account that had been given of it by the Indians. The next day, from the appearance of Mount Camel, they had a demonstration that the breadth of New Zealand could not be more than two or three miles from sea to sea. During this part of the navigation two particulars occurred which are very remarkable. In latitude 35° south, and in the middle of summer, Lieutenant Cook met with a gale of wind, which, from its strength and continuance, was

such as he had scarcely ever been in before ; and he was three weeks in getting ten leagues to the westward, and five weeks in getting fifty leagues ; for at this time, being the 1st of January, 1770, it was so long since he had passed Cape Bret. While the gale lasted they were at a considerable distance from the land.

At daybreak the next morning he stood in for an inlet, and at eight got within the entrance. At nine o'clock, there being little wind, and what there was being variable, the Endeavor was carried by the tide or current within two cables' length of the northwest shore, where she had fifty-four fathoms water. By the help of the boats she was gotten clear ; and they anchored in a very safe and convenient cove.

In passing some rocks on the 9th of March, 1770, in the night, it appeared in the morning that the ship had been in the most imminent danger. Her escape was indeed critical in the highest degree. To these rocks, which, from their situation, are so well adapted to catch unwary strangers, Lieutenant Cook gave the name of the Traps. On the same day he reached a point of land which he called the South Cape, and which he supposed, as proved in fact to be the case, the southern extremity of the country.

In sailing, on the 14th, the Endeavor passed a small narrow opening in the land, where there seemed to be a very safe and convenient harbor, formed by an island, which lay eastward in the middle of the opening. On the land behind the opening were mountains the summits of which were covered with snow that appeared to have recently fallen. Indeed, for two days past, they had found the weather extremely cold. On each side the entrance of the opening the land rises almost perpendicularly from the sea to a stupendous height. For this reason Lieutenant Cook did not choose to carry the ship into the harbor. He was sensible that no wind could blow there but right in or right out ; and he did not think it by any means advisable to put into a place whence he could not have gotten but with a wind which experience had taught him did not blow more than one day in a month. Sagacious as this determination of Lieutenant Cook was it did not give universal satisfaction.

By the 27th of March they had circumnavigated the whole country of Tovy-Poenammoo, and arrived within sight of the island formerly mentioned, which lies at the distance of nine

leagues from the entrance of Queen Charlotte's Sound. Having at this time thirty tons of empty water-casks on board, it was necessary to fill them before proceeding on the voyage. For this purpose they hauled round the island and entered a bay, situated between that and Queen Charlotte's Sound, and to which the name was given of Admiralty Bay.

The business of wooding and watering having been completed on the 30th, and the ship being ready for the sea, the point now to be determined was, what route should be pursued in returning home that would be of most advantage to the public service. Upon this subject the Lieutenant thought proper to take the opinion of his officers. He had himself a strong desire to return by Cape Horn, because that would have enabled him to determine whether there is or is not a southern continent. But against this scheme was a sufficient objection. It was at last resolved that they should return by the East Indies; and that with this view they should steer westward till they should fall in with the east coast of New Holland, and then follow the direction of that coast to the northward till they should arrive at its northern extremity. If that should be found impracticable it was further resolved that they should endeavor to fall in with the land, or islands, said to have been discovered by Quiros.

In the six months which Lieutenant Cook had spent in the examination of New Zealand he made very large additions to the knowledge of geography and navigation. That country was first discovered in the year 1642 by Abel Jansen Tasman, a Dutch navigator. He traversed the eastern coast from latitude $34^{\circ} 43'$, and entered the strait now called Cook's Strait; but being attacked by the natives soon after he came to an anchor, in the place which he named Murderer's Bay, he never went on shore. Nevertheless he assumed a kind of claim to the country by calling it Staten Land, or the Land of the States, in honor of the States-General. It is now usually distinguished in maps and charts by the name of New Zealand. The whole of the country, excepting that part of the coast which was seen by Tasman from on board his ship, continued from his time, to the voyage of the Endeavor, altogether unknown.

On the 31st of March Lieutenant Cook sailed from Cape Farewell in New Zealand, and pursued his voyage to the westward. New Holland, or, as it is now called, New South

Wales, came in sight on the 19th of April, and on the 28th of that month the ship anchored in Botany Bay.

It was upon account of the great quantity of plants which Mr. Banks and Dr. Solander collected in this place that Lieutenant Cook was induced to give it the name of Botany Bay. It is situated in the latitude of 34° south, and in the longitude of $208^{\circ} 37'$ west.

At daybreak on the 6th of May the navigators sailed from Botany Bay, and as they proceeded on their voyage the lieutenant gave the names that are indicated upon the map to the bays, capes, points, and remarkable hills which successively appeared in sight. On the 14th the Endeavor advanced to the northward, being then in latitude $30^{\circ} 22'$ south, and longitude $206^{\circ} 39'$ west.

In navigating the coast of New South Wales, where the sea in all parts conceals shoals which suddenly project from the shore, and rocks that rise abruptly like a pyramid from the bottom, Lieutenant Cook had hitherto conducted his vessel in safety for an extent of 22° of latitude, being more than 1,300 miles. But, on the 10th of June, as he was pursuing his course from a bay to which he had given the name of Trinity Bay, the Endeavor fell into a situation as critical and dangerous as any that is recorded in the history of navigation. They were now near the latitude assigned to the islands that were discovered by Quiros, and which, without sufficient reason, some geographers have thought proper to join to this land. The ship had the advantage of a fine breeze and a clear moonlight night, and in standing off from six till near nine o'clock, she had deepened her water from fourteen to twenty-one fathoms. But while they were at supper it suddenly shoaled, and they fell into twelve, ten, and eight fathoms, within the compass of a few minutes. Lieutenant Cook immediately ordered every man to his station, and all was ready to put about and come to an anchor, when deep water being met with again at the next cast of the lead, it was concluded that the vessel had gone over the tail of the shoals which had been seen at sunset, and that the danger was now over. This idea of security was confirmed by the water's continuing to deepen to twenty and twenty-one fathoms, so that the men left the deck in great tranquillity and went to bed. However, a little before eleven, the water shoaled at once from twenty to seventeen fathoms, and before the lead

could be cast again the ship struck and remained immovable, excepting so far as she was influenced by the heaving of the surge, that beat her against the crags of the rock upon which she lay. A few moments brought every person upon deck, with countenances suited to the horrors of the situation. On examining the depth of water round the ship, it was speedily discovered that the misfortune was equal to their apprehensions. The vessel had been lifted over a ledge of the rock, and lay in a hollow within it, in some places of which hollow there were from three to four fathoms, and in others not so many feet of water. To complete the scene of distress, it appeared that the sheathing boards from the bottom of the ship were floating away all round her, and at last her false keel; so that every moment was making way for the whole company's being swallowed up by the rushing in of the sea. There was now no chance but to lighten her, and the opportunity had unhappily been lost of doing it to the best advantage; for, as the Endeavor had gone ashore just at high water, and by this time it had considerably fallen, she would, when lightened, be but in the same situation as at first. The only alleviation of this circumstance was, that as the tide ebbed, the vessel settled to the rocks, and was not beaten against them with so much violence. The crew had some hope from the next tide, though it was doubtful whether the ship would hold together so long, especially as the rock kept grating part of her bottom with such force as to be heard in the fore store-room. No effort, however, was remitted from despair of success. That no time might be lost, the water was immediately started in the hold and pumped up; six guns, being all that were upon the deck, a quantity of iron and stone ballast, casks, hoop-staves, oil-jars, decayed stores, and a variety of things besides, were thrown overboard with the utmost expedition. Every one exerted himself, not only without murmuring and discontent, but even with an alacrity which almost approached to cheerfulness. So sensible, at the same time, were the men of their situation, that not an oath was heard among them, the detestable habit of profane swearing being instantly subdued by the dread of incurring guilt when a speedy death was in view.

While Lieutenant Cook and all the people about him were thus employed, the opening of the morning of the 11th of June presented them with a fuller prospect of their danger.

The land was seen by them at about eight leagues distance, without any island in the intermediate space, upon which, if the ship had gone to pieces, they might have been set ashore by the boats, and carried thence by different turns to the main. Gradually, however, the wind died away, and early in the forenoon it became a dead calm. High-water being expected at eleven in the morning, and everything being made ready to heave her off if she should float, it became necessary to lighten her still more, and everything was thrown overboard that could possibly be spared. Hitherto the Endeavor had not admitted much water, but as the tide fell it rushed in so fast that she could scarcely be kept free, though two pumps were incessantly worked. There were now no hopes but from the tide at midnight, to prepare for taking the advantage of which the most vigorous efforts were exerted. About five o'clock in the afternoon the tide began to rise, but, at the same time, the leak increased to a most alarming degree. Two more pumps, therefore, were manned, one of which unhappily would not work. Three pumps, however, were kept going, and at nine o'clock the ship righted. Nevertheless, the leak had gained so considerably upon her, that it was imagined that she must go to the bottom as soon as she ceased to be supported by the rock. It was, indeed, a dreadful circumstance to Lieutenant Cook and his men that they were obliged to anticipate the floating of the vessel not as an earnest of their deliverance, but as an event which probably would precipitate their destruction. They knew that their boats were not capable of carrying the whole of them on shore, and that when the dreadful crisis should arrive, all command and subordination being at an end, a contest for preference might be expected, which would increase even the horrors of shipwreck, and turn their rage against each other. Some of them were sensible that if they should escape to the mainland, they were likely to suffer more upon the whole than those who would be left on board to perish in the waves. The latter would only be exposed to instant death, whereas the former, when they got on shore, would have no lasting or effectual defence against the natives, in a part of the country where even nets and firearms could scarcely furnish them with food.

The dreadful moment which was to determine their fate drew on; and every one saw, in the countenances of his com-

panions, the picture of his own sensations. The lieutenant ordered the capstan and windlass to be manned with as many hands as could be spared from the pumps, and the ship having floated, the grand effort was made, and she was heaved into deep water. It was no small consolation to find that she did not now admit of more water than she had done when upon the rock. By the gaining of the leak upon the pumps, three feet and nine inches of water were in the hold; notwithstanding, the men did not relinquish their labor. Thus they held the water as it were at bay: but having endured excessive fatigue of body and agitation of mind for more than twenty-four hours, they began at length to flag. None of them could work at the pump above five or six minutes together; after being totally exhausted they threw themselves down upon the deck. When those who succeeded them had worked their time, and in their turn were exhausted, they threw themselves down in the same manner, and the others started up again to renew their labor. The foretopmast and foreyard were next erected, and there being a breeze from the sea, the Endeavor got once more under sail.

It was not possible long to continue the labor by which the pumps had been made to gain upon the leak; and as the exact place of it could not be discovered, there was no hope of stopping it within. At this crisis Monkhouse, one of the midshipmen, came to Lieutenant Cook, and proposed an expedient he had once seen used on board a merchant ship, which had sprung a leak that admitted more than four feet of water in an hour, and which by this means had been safely brought from Virginia to London. To Monkhouse, therefore, the care of the expedient, which is called fothering the ship, was, with proper assistance, committed; and his method of proceeding was as follows: He took a lower studding sail, and having mixed together a large quantity of oakum and wool, he stitched it down, as lightly as possible, in handfulls upon the sail, and spread over it the dung of the sheep of the vessel, and other filth. The sail being thus prepared, it was hauled under the ship's bottom by ropes, which kept it extended. When it came under the leak, the suction that carried in the water, carried in with it the oakum and wool from the surface of the sail. In other parts the water was not sufficiently agitated to wash off the oakum and the wool. The success of the expedient was answerable to the warmest

expectations; for hereby the leak was so far reduced that, instead of gaining upon three pumps, it was easily kept under with one. Here was such a new source of confidence and comfort, that the men could scarcely have expressed more joy if they had been already in port. It had lately been the utmost object of their hope to run the ship ashore in some harbor, either of an island or the main, and to build a vessel out of her materials, to carry them to the East Indies. Nothing, however, was now thought of but to range along the coast in search of a convenient place to repair the damage the Endeavor had sustained.

To complete the history of this wonderful preservation, it is necessary to bring forward a circumstance, which could not be discovered till the ship was laid down to be repaired. It was then found that one of her holes was in a great measure filled up by a fragment of the rock, upon which the Endeavor had struck. To this singular event it was owing, that the water did not pour in with a violence which must speedily have involved the Endeavor and all her company in inevitable destruction.

Hitherto none of the names by which Lieutenant Cook had distinguished the several parts of the country seen by him were memorials of distress. But the anxiety and danger which he and his men had now experienced, induced him to call a point in sight, which lay to the northward, Cape Tribulation.

The next object after this event was to look out for a harbor where the defects of the ship might be repaired, and the vessel put into proper order for future navigation. On the 14th a small harbor was happily discovered, which was excellently adapted to the purpose.

At this time the scurvy, with many formidable symptoms, began to make its appearance among the crew. Tapia, in particular, was so grievously affected with the disease, that all the remedies prescribed by the surgeon could not retard its progress. Mr. Green, the astronomer, was also upon the decline. These and other circumstances embittered the delay which prevented the commander and his companions from getting on shore. On the morning of the 17th the lieutenant ventured to weigh, and to put in for the harbor, the entrance into which was by a very narrow channel. In making the attempt the ship was twice run aground. At the first time

she went off without any trouble, but the second time she stuck fast. By proper exertions, in conjunction with the rising of the tide, she floated, and was soon warped into the harbor. The succeeding day was employed in erecting two tents, in landing the provisions and stores, and in making every preparation for repairing the damages which the Endeavor had sustained.

It was not till the 22d that the tide so far left the Endeavor as to give the crew an opportunity of examining her leak. In the place where it was found, the rocks had made their way through four planks. Three more planks were greatly damaged, and there was something very extraordinary in the appearances of the breaches. Not a splinter was to be seen, but all was as smooth as if the whole had been cut away by an instrument.

On the 29th of June Lieutenant Cook, in conjunction with Mr. Green, observed an emersion of Jupiter's first satellite. The time here was 2h. 18' 53", which gave the longitude of the place at $214^{\circ} 42' 30''$ west; its latitude is $15^{\circ} 26'$ south. The next morning the lieutenant sent some of the men to take a plan of the harbor, whilst he himself ascended a hill, that he might gain a full prospect of the sea. On this and the preceding day, the men had been very successful in hauling the seine. The supply of fish was so great, that the lieutenant was now able to distribute two pounds and a half to each man.

Early in the morning of the 2d of July, Lieutenant Cook sent the master out of the harbor, in the pinnace, to sound about the shoals, and to search for a channel to the northward. A second attempt, which was made this day to heave off the ship, was as unsuccessful as a former one had been. The next day the master returned, and reported that he had found a passage out to sea, between the shoals. On one of these shoals, which consisted of coral rocks, many of which were dry at low water, he had landed, and found there cockles of so enormous a size, that a single cockle was more than two men could eat. At the same place he met with a great variety of other shell-fish, and brought back with him a plentiful supply. At high-water another effort was made to float the ship, which happily succeeded; but it being found that she had sprung a plank between decks, it became necessary to lay her ashore a second time.

On the morning of the 29th, the weather becoming calm and a light breeze having sprung up by land, Lieutenant Cook sent a boat to see what water was upon the bar, and all things were made ready for putting to sea. But on the return of the boat the officer reported that there were only thirteen feet of water on the bar. As the ship drew thirteen feet six inches, and the sea breeze set in again in the evening, all hope of sailing on that day was given up. The weather being more moderate on the 31st, the lieutenant had thoughts of trying to warp the vessel out of the harbor, but upon going out himself in the boat, he found that the wind still blew so fresh that it would not be proper to make the attempt. The carpenter, who had examined the pumps, reported that they were all of them in a state of decay. The chief confidence of the men was now in the soundness of the ship, and it was a happy circumstance that she did not admit more than one inch of water in an hour.

Early on the 3d of August another unsuccessful attempt was made to warp the vessel out of the harbor, but in the morning of the next day the efforts were more prosperous, and the Endeavor got once more under sail, with a light air from the land, which soon died away and was followed by sea breezes. With these breezes the ship stood off to sea, east by north, having the pinnace ahead, which was ordered to keep sounding without intermission.

At last the Endeavor, early in the morning of the 13th of August, got under sail and successfully passed through one of the channels or openings in the outer reef which Cook had seen from the island. When the ship had gotten without the breakers there was no ground within one hundred and fifty fathoms, and the crew found a large sea rolling in upon them from the southeast. This was a certain sign that neither land nor shoals were near them in that direction.

So happy a change in the situation was sensibly felt in every breast and was visible in every countenance. They had been little less than three months in a state that perpetually threatened them with destruction.

The passage or channel through which the Endeavor passed into the open sea beyond the reef lies in latitude $14^{\circ} 32' S$. It may always be known by the three high islands within it. For guiding the way of future voyagers, the commander gave them the appellation of the Islands of Direction.

In the prosecution of the voyage the crew, on the 19th of August, were encompassed on every side with rocks and shoals; but, as they had lately been exposed to much greater danger and these objects were now become familiar, they began to regard them comparatively with little concern. On the 21st, there being two points in view between which they could see no land, they conceived hopes of having at last found a passage into the Indian sea. Cook, however, resolved to land upon an island which lies at the southeast point of the passage. Accordingly he went into the boat with a party of men, accompanied by Banks and Dr. Solander.

The men immediately climbed the highest hill, from which no land could be seen between the southwest and west southwest; so that the lieutenant had not the least doubt of finding a channel through which he could pass to New Guinea. As he was now about to quit the coast of New Holland, which he had traced from latitude thirty-eight to this place and which he was certain no European had ever seen before, he once more hoisted English colors. He had, indeed, already taken possession of several particular parts of the country. But he now took possession of the whole eastern coast, with all the bays, harbors, rivers and islands situated upon it, from latitude 38° to latitude $10^{\circ} \frac{1}{2}'$ S., in right of King George the Third, and by the name of New South Wales. The party then fired three volleys of small arms, which were answered by the same number from the ship. When the men had performed this ceremony upon the island, which they called Possession Island, they re-embarked in their boat, and in consequence of a rapid ebb tide had a very difficult and tedious return to the vessel.

On the 23d the wind came round to the southwest, and though it was but a gentle breeze, yet it was accompanied by a swell from the same quarter, which, in conjunction with other circumstances, confirmed Lieutenant Cook in his opinion that he had arrived to the northern extremity of New Holland, and that he had now an open sea to the westward. These circumstances afforded him peculiar satisfaction, not only because the dangers and fatigues of the voyage were drawing to a conclusion, but because it could no longer be doubted whether New Holland and New Guinea were two separate islands. The northeast entrance of the strait lies in the latitude of $10^{\circ} 39'$ S. and in the longitude of $218^{\circ} 36'$

W., and the passage is formed by the main land and by a congeries of islands to the northwest, called by the lieutenant the Prince of Wales' Islands, and which may probably extend as far as to New Guinea. Their difference is very great both in height and circuit, and many seemed to be well covered with herbage and wood, nor was there any doubt of their being inhabited.

New Holland, or, as the eastern part of it was called by Lieutenant Cook, New South Wales, is the largest country in the known world which does not bear the name of a continent. The length of coast, when reduced to a straight line, was no less than twenty-seven degrees of latitude, amounting nearly to two thousand miles. In fact, the square surface of the island is much more than equal to the whole of Europe.

From the coast of New South Wales the lieutenant steered, on the 23d of August, for the coast of New Guinea, and on the 25th fell upon a dangerous shoal. The ship was in six fathoms, but scarcely two were found, upon sounding round her, at a distance of half a cable's length. This shoal was of such an extent, reaching from the east round by the north and west to the southwest, that there was no method for the vessel to get clear of it but by her going back the way in which she came. Here was another hairbreadth escape; for it was nearly highwater and there ran a short, cockling sea, which if the ship had struck must have soon bulged her.

At day-break on the 3d of September they came in sight of New Guinea, and stood in for it with a fresh gale till nine o'clock, when they brought to, being in three fathoms of water and within about three or four miles of land.

Without staying on the coast of New Guinea the Endeavor directed her course to the westward. Cook had an opportunity of rectifying the errors of former navigators. Very early in the morning of the 6th of September they passed a small island which lay to the north-northwest; and at day-break they discovered another low island extending from that quarter to north-northeast.

On the 7th, when the ship was in latitude $9^{\circ} 30'$ south and longitude $229^{\circ} 34'$ west, they ought to have been in sight of the Weasel Isles, which in the charts are laid down at the distance of twenty or twenty-five leagues from the coast of New Holland. But as Cook saw nothing of them he concluded that they must have been placed erroneously.

In pursuing their course the navigators passed the islands of Timor, Timor-lavet, Rotte and Seman. While they were near the two latter islands they observed about ten o'clock at night a phenomenon in the heavens, which in many particulars resembled the Aurora Borealis, though in others it was very different. It consisted of a dull reddish light, which reached about twenty degrees above the horizon; and though its extent, at times, varied much, it never comprehended less than eight or ten points of the compass. Out of the general appearance there passed rays of light of a brighter color, which vanished and were renewed nearly in the same manner as those of the Aurora Borealis, but entirely without the tremulous or vibratory motion which is seen in that phenomenon.

By the 16th Lieutenant Cook had gotten clear of all the islands which had then been laid down in the maps as situated between Timor and Java, and did not expect to meet with any other in that quarter. But the next morning an island was seen bearing west-southwest, and at first he believed that he had made a new discovery. As soon as they had come close in with the north side of it they had the pleasing prospect of houses and cocoa-nut trees, and, of what still more agreeably surprised them, numerous flocks of sheep. Many of the people on board were at this time in a bad state of health, and no small number of them had been dissatisfied with the Lieutenant for not having touched at Timor. He readily embraced the opportunity of landing at a place which appeared so well calculated to supply the necessities of the company, and to remove both the sickness and the discontent which had spread among them. This place proved to be the island of Savu, where a settlement had lately been made by the Dutch.

The great design of Cook was to obtain provisions, which, after some difficulty and some jealousy on the part of Lange, the Dutch resident, were procured. These provisions were nine buffaloes, six sheep, three hogs, thirty dozen of fowls, many dozen of eggs, some cocoa-nuts, a few limes, a little garlic and several hundred gallons of palm-syrup. In obtaining these refreshments at a reasonable price they were assisted by an old Indian, who appeared to be a person of considerable authority under the king of the country. The Lieutenant and his friends were one day very hospitably entertained

by the king himself, though the royal etiquette did not permit his majesty to partake of the banquet.

On the 21st of September they got under sail, and having pursued their voyage till the 1st of October, on that day they came within sight of the island of Java. During their course from Savu Lieutenant Cook allowed twenty minutes a day for the westerly current, which he concluded must run strong at this time, especially on the coast of Java; and accordingly he found that this allowance was exactly equivalent to the effect of the current upon the ship. Such was the sagacity of Cook's judgment in whatever related to navigation.

On the 2d, two Dutch ships being seen to lie off Anger Point, the Lieutenant sent Hicks on board one of them to inquire news concerning England, from which he had been so long absent. Hicks brought back the intelligence that the Swallow, commanded by Captain Carteret, had been at Batavia two years before.

It being universally agreed that the ship could not safely proceed without an examination of her bottom, Cook determined to apply for leave to heave her down at Batavia; and for this purpose he drew up a request in writing, which, after he had waited first upon the Governor General and then upon the Council, was readily complied with, and he was told that he should have everything he wanted.

By the 8th of December the Endeavor was perfectly refitted. From that time to the 24th they were employed in completing her stock of water, provisions and stores, in erecting some new pumps, and in various other necessary operations. All this business would have been effected much sooner if it had not been retarded by the general sickness of the men.

In the afternoon of the 24th Cook took leave of the Governor of Batavia with whom he had formed connections. In the meanwhile a seaman, who had run away from one of the Dutch ships in the road, entered on board the Endeavor. Upon his being reclaimed as a subject of Holland, Cook, who was on shore, declared that, if the man appeared to be a Dutchman, he certainly should be delivered up. When the order was carried to Hicks, who commanded on board, he refused to surrender the seaman, alleging that he was a subject of Great Britain, born in Ireland. The captain of the Dutch vessel, in the next place, by a message from the Gov-

ernor General, demanded the man as a subject of Denmark. To this Cook replied that there must be some mistake in the General's message, since he would never demand of him a Danish seaman, whose only crime was that of preferring the English to the Dutch service. At the same time the Lieutenant added, that to show the sincerity of his desire to avoid disputes, if the man was a Dane he should be delivered up as a courtesy; but that if he appeared to be an English subject he should be kept at all events. Soon after a letter was brought from Hicks, containing indubitable proofs that the seaman in question was a subject of his Britannic majesty. This letter Cook sent to the Governor, with an assurance to his excellency that he would not part with the man on any terms. A conduct so firm and decisive produced the desired effect, no more being heard of the affair.

In the evening of the 25th Lieutenant Cook went on board with Mr. Banks. At this time the sick persons in the ship amounted to forty, and the rest of the company were in a very feeble condition. It was remarkable that every individual had been ill excepting the sail-maker, who was an old man between seventy and eighty years of age, and who was drunk every day during the residence of the crew at Batavia. Three seamen, and Mr. Green's servant, died, besides the surgeon, Tupia and Tayeto.

On the 27th of December the Endeavor stood out to sea, and on the 5th of January, 1771, she came to an anchor under the southeast side of Prince's Island. The design of this was to obtain a new supply of wood and water, and to procure some refreshments for the sick, many of whom had become much worse than they were when they left Batavia.

As the Endeavor proceeded on her voyage to the Cape of Good Hope the seeds of disease, which had been received at Batavia, appeared with the most threatening symptoms, and reduced all to a very melancholy situation. The ship was, in fact, nothing better than an hospital, in which those who could go about were not sufficient for a due attendance upon those who were sick. Lest the water which had been taken in at Prince's Island should have had any share in adding to the disorder of the men, the Lieutenant ordered it to be purified with lime; and as a further remedy against infection, he directed all the parts of the vessel between the decks to be washed with vinegar. The malady had taken too deep root

to be speedily eradicated. Banks was reduced so low by it that for some time there was no hope of his life; and so fatal was the disease to many others that almost every night a dead body was committed to the sea. There were buried in about the course of six weeks Sporing, a man who was one of Banks' assistants, Parkinson, his natural history painter, Green, the astronomer, the boatswain, the carpenter, Monkhouse, the midshipman, another midshipman, the old jolly sail-maker and his assistant, the ship's cook, the corporal of the marines, two of the carpenter's crew, and nine seamen—in all the loss amounted to three and twenty persons, besides the seven who died at Batavia. It is probable that these calamitous events, which could not fail of making a powerful impression on the mind of Lieutenant Cook, might give occasion to his turning his thoughts more zealously to those methods of preserving the health of seamen, which he afterwards pursued with such remarkable success.

On the 15th of March the Endeavor arrived off the Cape of Good Hope; and as soon as she was brought to an anchor Cook waited upon the governor, from whom he received assurances that he should be furnished with every supply which the country could afford. His first care was to provide a proper place for the sick, whose number was not small; and a house was speedily found, where it was agreed that they should be lodged and boarded.

The run from Java Head to the Cape of Good Hope did not furnish many subjects of remark.

The lieutenant having lain at the cape to recover the sick and to refit his vessel till the 14th of April, then stood out of the bay and proceeded on his voyage homeward. On the morning of the 29th he crossed his first meridian, having circumnavigated the globe in the direction from east to west. The consequence of this was that he had lost a day, an allowance for which had been made at Batavia. On the 1st of May he arrived at St. Helena, where he stayed till the 4th to refresh.

When Lieutenant Cook departed from St. Helena on the 4th it was in company with the Portland man-of-war and twelve Indiamen. With this fleet he continued to sail till the 10th, when perceiving that the Endeavor proceeded much more heavily than any of the other vessels, and that she was not likely to get home so soon as the rest, he made a signal

to speak with the Portland. Upon this Captain Elliot himself came on board, and Cook delivered to him the common log-books of his ship and the journals of some of the officers. The Endeavor, however, kept in company with the fleet till the morning of the 23d, at which time there was not a single vessel in sight. On that day Hicks died, and in the evening his body was committed to the sea with the usual ceremonies. Charles Clerke, a young man extremely well qualified for the station, received an order from Cook to act as lieutenant in Hicks' place.

The rigging and sails of the ship had now become so bad that something was continually giving way. Nevertheless Lieutenant Cook pursued his course in safety, and on the 10th of June land, which proved to be the Lizard, was discovered by Nicholas Young, the boy who had first seen New Zealand. On the 11th the lieutenant ran up the channel, the next morning he passed Beechy Head, and in the afternoon of the same day he came to an anchor in the Downs, and went on shore at Deal.

Thus ended Lieutenant Cook's first voyage round the world.

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CHAPTER IV.

CAPTAIN COOK'S VOYAGES.

Cook's Second Expedition in the Ships Resolution and Adventure—Reaching Table Bay—
Fields of Ice—Aurora Australis—Dusky Bay—Queen Charlotte's Sound—Cook Visits
Queen Charlotte's Sound—Scurvy on Board—Pitcairn Island—Society Islands—Return to
Queen Charlotte's Sound—Marquesas Islands—Shepherd's Isles—The New Hebrides—
Third Visit of Queen Charlotte's Sound.

THE manner in which Lieutenant Cook had performed his circumnavigation of the globe justly entitled him to the protection of government and the favor of his sovereign. Accordingly he was promoted to be a commander in the British navy by commission bearing date on the 29th of August, 1771.

The reputation the navigator had acquired by his late voyage was deservedly great, and the desire of the public to be acquainted with the new scenes and new objects which were now brought to light was ardently excited.

Captain Cook, during his voyage, had sailed over the Pacific Ocean in many of those latitudes in which a southern continent had been expected to lie. He had ascertained that neither New Zealand nor New Holland were parts of such a continent. But the general question concerning its existence had not been determined by him, nor did he go out for that purpose, though some of the reasons on which the notion of it had been adopted were dispelled in the course of his navigation. It is well known how fondly the idea of a *Terra Australis incognita* had for nearly two centuries been entertained.

The Earl of Sandwich was possessed of a mind which was capable of comprehending and encouraging the most enlarged views and schemes with regard to navigation and discovery. Accordingly, it was by his particular recommendation that a resolution was formed for the appointment of an expedition, finally to determine the question concerning the existence of a southern continent.

When the design of accomplishing this great object was

resolved upon, it did not admit of any hesitation by whom it was to be carried into execution. No person was esteemed equally qualified with Captain Cook for conducting an enterprise the view of which was to give the utmost possible extent to the geography of the globe, and the knowledge of navigation. For the greater advantage of the undertaking, it was determined that two ships should be employed; and much attention was paid to the choice of them, and to their equipment for the service. After mature deliberation by the Navy Board, during which particular regard was had to the captain's wisdom and experience, it was agreed that no vessels were so proper for discoveries in distant unknown parts as those which were constructed like the *Endeavor*. This opinion concurring with that of the Earl of Sandwich, the admiralty came to a resolution that two ships should be provided of a similar construction. Accordingly, two vessels, both of which had been built at Whitby, by the same person who built the *Endeavor*, were purchased of Captain William Hammond, of Hull. They were about fourteen or fifteen months old at the time when they were bought, and, in Captain Cook's judgment, were as well adapted to the intended service as if they had been expressly constructed for that purpose. The larger of the two, which consisted of 462 tons burthen, was named the *Resolution*. To the other, which was 336 tons burthen, was given the name of the *Adventure*. On the 28th of November, 1771, Captain Cook was appointed to the command of the former; and, about the same time, Tobias Furneaux was promoted to the command of the latter. The complement of the *Resolution*, including officers and men, was fixed at 112 persons, and that of the *Adventure* at 81. In the equipment of these ships every circumstance was attended to that could contribute to the comfort and success of the voyage. They were fitted in the most complete manner, and were supplied with every extraordinary article which was suggested to be necessary or useful. Lord Sandwich, whose zeal was indefatigable upon this occasion, visited the vessels from time to time, to be assured that the whole equipment was agreeable to his wishes, and to the satisfaction of those who were to engage in the expedition. Nor were the Navy and Victualling Boards wanting in procuring for the ships the very best of stores and provisions, with some alterations in the species of them, that were adapted to the nature

of the enterprise; besides which, there was an ample supply of anti-scorbutic articles, such as malt, sour krout, salted cabbage, portable broth, saloup, mustard, marmalade of carrots, and inspissated juice of wort and beer.

No less attention was paid to the cause of science in general. The admiralty engaged William Hodges, an excellent landscape painter, to embark on the voyage, in order to make drawings and paintings of such objects as could not so well be comprehended from written descriptions. John Reinhold Forster and his son were fixed upon to explore and collect the natural history of the countries which might be visited, and an ample sum was granted by Parliament for the purpose. That nothing might be wanting to accomplish the scientific views of the expedition, the Board of Longitude agreed with William Wales and William Bayley to make astronomical observations. Wales was stationed in the *Resolution* and Bayley in the *Adventure*. By the same board they were furnished with the best of instruments, and particularly with four time-pieces, three constructed by Arnold, and one by Kendal on Harrison's principles.

Though Captain Cook had been appointed to the command of the *Resolution* on the 28th of November, 1771, such were the preparations necessary for so long and important a voyage, and the impediments which occasionally and unavoidably occurred, that the ship did not sail from Deptford till the 9th of April following, nor did she leave Long Reach till the 10th of May. In plying down the river it was found necessary to put into Sheerness, in order to make some alterations in her upper works. These the officers of the yard were directed immediately to take in hand, and Lord Sandwich and Sir Hugh Palliser came down to see them executed in the most effectual manner. The ship being again completed for sea by the 22d of June, Captain Cook on that day sailed from Sheerness, and, on the 3d of July, joined the *Adventure* in Plymouth Sound.

On the 13th of July Captain Cook sailed from Plymouth, and on the 29th of the same month anchored in Funchiale Road, in the island of Madeira. Having obtained a supply of water, wine, and other necessaries at that island, he left it on the 1st of August, and sailed to the southward.

The captain having found that his stock of water would not last to the Cape of Good Hope, without putting his men to a

scanty allowance, resolved to stop at St. Jago, one of the Cape de Verd islands, for a supply. At Port Praya, in this island, he anchored on the 10th of August, and by the 14th had completed his water and procured some other refreshments; upon which he set sail, and prosecuted his course.

On the 8th of September they crossed the line in the longitude 8° west, and proceeded, without meeting anything remarkable, till the 11th of October, when at 6 hrs. 24 min. 12 sec., by Kendal's watch, the moon rose about four digits eclipsed, soon after which the men prepared to observe the end of the eclipse.

Cook had been informed, before he left England, that he sailed at an improper season of the year, and that he should meet with much calm weather, near and under the line. But though such weather may happen in some years, it is not always, or even generally, to be expected. So far was it from being the case, that he had a brisk southwest wind in those very latitudes where the calms had been predicted; nor was he exposed to any of the tornadoes which are so much spoken of by other navigators.

On the 30th the Resolution and Adventure anchored in Table Bay; soon after which Captain Cook went on shore, and, accompanied by Captain Furneaux, and the two Forsters, waited on Baron Plettenberg, the Governor of the Cape of Good Hope, who received the men with great politeness, and promised them every assistance the place could afford. From him Cook learned that two French ships from the Mauritius, about eight months before, had discovered land, in the latitude of 48° south, along which they sailed forty miles, till they came to a bay, into which they were upon the point of entering, when they were driven off and separated in a hard gale of wind. Previously to this misfortune, they had lost some of their boats and people that had been sent to sound the bay. He was also informed by Baron Plettenberg that in the month of March two other French ships from the island of Mauritius had touched at the cape in their way, to the South Pacific Ocean, where they were going to make discoveries, under the command of M. Marion.

On the 22d of November Cook sailed from the Cape of Good Hope, and proceeded on his voyage in search of a southern continent. Having gotten clear of the land, he directed his course for Cape Circumcision; and, judging that

cold weather would soon approach, he ordered slops to be served to such of the people as were in want of them, and gave to each man the fear-nought jacket and trousers allowed by the Admiralty. On the 29th the wind, which was west-north-west, increased to a storm, that continued, with some few intervals of moderate weather, till the 6th of December. By this gale, which was attended with hail and rain, and which blew at times with such violence that the ships could carry no sails, they were driven far to the eastward of their intended course, and no hopes were left to the captain of reaching Cape Circumcision. A still greater misfortune was the loss of the principal part of the live-stock on board, consisting of sheep, hogs, and geese. At the same time, the sudden transition from warm, mild weather, to weather which was extremely cold and wet, was so severely felt by the crew, that it was necessary to make some addition to their allowance of spirits, by giving each of them a dram on particular occasions.

On the 10th of December, began to meet with islands of ice. One of these islands was so much concealed from them by the haziness of the weather, accompanied with snow and sleet, that they were steering directly towards it, and did not see it till it was at a less distance than that of a mile.

By Sunday the 17th of January, 1773, Cook reached the latitude of $67^{\circ} 15'$ south, when he could advance no farther. At this time the ice was entirely closed to the south, in the whole extent from east to west-south-west, without the least appearance of any opening.

On the morning of the 17th of February, between midnight and three o'clock, lights were seen in the heavens, similar to those which are known in the northern hemisphere by the name of the aurora borealis. Captain Cook had never heard that an aurora australis had been seen before. The officer of the watch observed that it sometimes broke out in spiral rays, and in a circular form, at which time its light was very strong, and its appearance beautiful. It was not perceived to have any particular direction. On the contrary, at various times, it was conspicuous in different parts of the heavens, and diffused its light throughout the whole atmosphere.

On the 20th they imagined that they saw land to the south-west. Their conviction of its real existence was so strong,

that they had no doubt of the matter, and accordingly they endeavored to work up to it, in doing which the weather was favorable to their purpose. However, what had been taken for land proved only to be clouds, that in the evening entirely disappeared, and left a clear horizon, in which nothing could be discerned but ice islands. At night the aurora australis was again seen, and the appearance it assumed was very brilliant and luminous. It first discovered itself in the east, and in a short time spread over the whole heavens.

As Captain Cook proceeded in examining Dusky Bay, he occasionally met with some few more of the natives; with regard to whom he used every mode of conciliation.

One employment, while in Dusky Bay, consisted in seal hunting, an animal which was found serviceable for three purposes. The skins were made use of for rigging, the fat afforded oil for the lamps, and the flesh was eaten. On the 24th of March the captain, having five geese remaining of those he had brought with him from the Cape of Good Hope, went and left them at a place to which he gave the name of Goose Cove. This place he fixed upon for two reasons; first, because there were no inhabitants to disturb them; and secondly, because here was the greatest supply of proper food; so that he had no doubt of their breeding, and hoped that in time they might spread over the whole country, to its eminent advantage. Some days afterward, when everything belonging to the ship had been removed from the shore, he set fire to the topwood, in order to dry a piece of ground, which he dug up, and sowed with several sorts of garden seeds. The soil, indeed, was not such as to promise much success to the planter; but it was the best that could be discovered.

The 25th of April was the eighth fair day they had successively enjoyed; and there was reason to believe that such a circumstance was very uncommon in the place where they now lay, and at that season of the year. This favorable weather afforded them the opportunity of more speedily completing their wood and water, and of putting the ship into a condition for sea. On the evening of the 25th it began to rain, and the weather was afterward extremely variable, being, at times, in a high degree wet, cold, and stormy. Nothing, however, prevented Captain Cook from prosecuting his search into every part of Dusky Bay.

The inhabitants, however, are of the same race with the other natives of New Zealand, speak the same language, and adhere nearly to the same customs. Their mode of life appears to be a wandering one, and though they are few in number, no traces were remarked of their families being connected together in any close bonds of union or friendship.

While the Resolution lay in the bay Wales made a variety of scientific observations, relative to latitude and longitude, the variation of the compass and the diversities of the tides.

When Captain Cook left Dusky Bay he directed his course for Queen Charlotte's Sound, where he expected to find the Adventure. This was on the 11th of May, and nothing remarkable occurred till the 17th, when the wind at once flattened to a calm, the sky became suddenly obscured by dark, dense clouds, and there was every prognostication of a tempest. Soon after six water-spouts were seen, four of which rose and spent themselves between the ship and the land; the fifth was at a considerable distance on the other side of the vessel, and the sixth, the progressive motion of which was not in a straight, but in a crooked line, passed within fifty yards of the stern of the Resolution without producing any evil effect. As the captain had been informed that the firing of a gun would dissipate water-spouts, he was sorry that he had not tried the experiment. But, though he was near enough and had a gun ready for the purpose, his mind was so deeply engaged in viewing these extraordinary meteors that he forgot to give the necessary directions.

On the next day the Resolution came within sight of Queen Charlotte's Sound, where Captain Cook had the satisfaction of discovering the Adventure, and both ships felt uncommon joy at thus meeting again after an absence of fourteen weeks. As the events which happened to Captain Furneaux during the separation of the two vessels do not fall within the immediate design of the present narrative, it may be sufficient to observe that he had an opportunity of examining, with somewhat more accuracy than had hitherto been done, Van Diemen's Land, and that his opinion was that there are no straits between this land and New Holland, but a very deep bay. He met with further proofs that the natives of New Zealand are eaters of human flesh.

The morning after Captain Cook's arrival in Queen Charlotte's Sound he went at daybreak to look for scurvy-grass,

celery and other vegetables, and he had the good fortune to return with a boat-load in a very short time. Having found that a sufficient quantity of these articles might be obtained for the crews of both the ships, he gave orders that they should be boiled with wheat and portable broth every day for breakfast and with peas and broth for dinner. Experience had taught him that the vegetables now mentioned, when thus dressed, are extremely beneficial to seamen in removing the various scorbutic complaints to which they are subject.

He had entertained a desire of visiting Van Diemen's Land, in order to inform himself whether it made a part of New Holland. But as this point had been, in a great measure, cleared up by Captain Furneaux, he came to a resolution to continue his researches to the east, between the latitudes of 41° and 46° , and he directed, accordingly, that the ships should be gotten ready for putting to sea as soon as possible. On the 20th he sent on shore the only ewe and ram that remained of those which, with the intention of leaving them in this country, he had brought from the Cape of Good Hope. Soon after he visited several gardens that by order of Captain Furneaux had been made and planted with various articles, all of which were in such a flourishing state that, if duly attended to, they promised to be of great utility to the natives. The next day Captain Cook himself set some men to work to form a garden on Long Island, which he stocked with different seeds, and particularly with roots of turnips, carrots, parsnips and potatoes. These were the vegetables that would be of the most real use to the Indians and of these it was easy to give them an idea by comparing them with such roots as they themselves knew. On the 22d Captain Cook received the unpleasant intelligence that the ewe and ram which with so much care and trouble he had brought to this place were both of them found dead. It was supposed that they had eaten some poisonous plant, and by this accident all the captain's hopes of stocking New Zealand with a breed of sheep were instantly blasted.

The intercourse which he had with the inhabitants of the country during this his second visit to Queen Charlotte's Sound was of a friendly nature.

On the 2d of June, when the Resolution and Adventure were almost ready to put to sea, Captain Cook sent on shore, on the east side of the sound, two goats, a male and a female.

and Captain Furneaux left, near Cannibal Cove, a boar and two breeding sows. The men had little doubt but that the country would in time be stocked with these animals, provided they were not destroyed by the Indians before they became wild. Afterwards there would be no danger, and, as the natives knew nothing of their being left behind, it was hoped that it might be some time before they would be discovered.

It is remarkable that during Captain Cook's second visit to Charlotte's Sound he was not able to recollect the face of any one person whom he had seen there three years before. Nor did it once appear that even a single Indian had the least knowledge of the commander or of any of the crew who had been with him in his last voyage. Hence he thought it highly probable that the greatest part of the natives who inhabited this sound in the beginning of the year 1770 had either since been driven out of it or had removed of their own accord to some other situation. Not one-third of the inhabitants were there now that had been seen at that time. Their stronghold on the Point of Notuara was deserted, and in every part of the sound many forsaken habitations were discovered. In the captain's opinion there was not any reason to believe that the place had ever been very populous. From comparing the two voyages together it may be collected that the Indians of Eaheinomauwe are in somewhat of a more improved state of society than those of Tavaipoenammoo.

On the 7th of June Captain Cook put to sea from Queen Charlotte's Sound, with the Adventure in company. It was found on the 29th of July that the crew of the Adventure were in a sickly state. Her cook was dead, and about twenty of her best men were rendered incapable of duty by the scurvy and flux. At this time no more than three men were on the sick-list on board the Resolution, and only one of these was attacked with the scurvy. Some others, however, began to discover the symptoms of it, and, accordingly, recourse was had to wort, marmalade of carrots and the rob of lemons and oranges with the usual success.

Captain Cook could not account for the prevalence of the scurvy being so much greater in the Adventure than in the Resolution, unless it was owing to the crew of the former being more scorbutic when they arrived in New Zealand than the crew of the latter and to their eating few or no vegetables

when they lay in Queen Charlotte's Sound. This arose partly from their want of knowing the right sorts and partly from the dislike which seamen have to the introduction of a new diet. Their aversion to any unusual change of food is so great that it can only be overcome by the steady and persevering example and authority of a commander. Many of Captain Cook's officers as well as common sailors disliked the boiling of celery, scurvy grass and other greens with the peas and wheat, and by some the provision thus prepared was refused to be eaten. But as this had no effect on the captain's conduct, their prejudice gradually subsided: they began to like their diet as much as the rest of their companions, and at length there was hardly a man in the ship who did not attribute the freedom of the crew from the scurvy to the beer and vegetables which had been made use of at New Zealand. Henceforward, whenever the seamen came to a place where vegetables could be obtained, Cook seldom found it necessary to order them to be gathered, and, if they were scarce, happy was the person who could lay hold on them first.

On the 1st of August, when the ships were in the latitude of $25^{\circ} 1'$ and the longitude of $134^{\circ} 6' W.$, they were nearly in the same situation with that which is assigned by Captain Carteret for Pitcairn's Island, discovered by him in 1767. For this island they diligently looked, but saw nothing.

It was the 6th of August before the ships had the advantage of the trade wind. This they got at southeast, being at that time in the latitude of $19^{\circ} 36'$ south, and the longitude of $131^{\circ} 32'$ west. As Captain Cook had obtained the southeast trade wind, he directed his course to the west-northwest, not only with a view of keeping in with the strength of the wind, but also to get to the north of the islands discovered in his former voyage, that he might have a chance of meeting with any other islands which might lie in the way. It was in the track which had been pursued by M. De Bougainville that he now proceeded. He was sorry that he could not spare time to sail to the north of this track; but at present, on account of the sickly state of the Adventure's crew, the arriving at a place where refreshments could be procured was an object superior to that of discovery. To four of the islands which were passed by Captain Cook, he gave the names of Resolution Island, Doubtful Island, Furneaux Island, and Adventure Island.

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Early in the morning on the 15th of August, 1773, the ships came within sight of Osnaburg Island, or Maitea, which had been discovered by Captain Wallis. Soon after, Captain Cook acquainted Captain Furneaux that it was his intention to put into Oaiti-piha Bay, near the southeast end of Otaheite, for the purpose of procuring what refreshments he could from that part of the island, before he went down to Matavai. At six in the evening the island was seen bearing west, and they continued to advance towards it till midnight, when they brought to till four o'clock in the morning, after which they sailed in for the land with a fine breeze at east. At daybreak they found themselves within the distance of half a league from the reef; and, at the same time, the breeze began to fail them, and was at last succeeded by a calm. It now became necessary for the boats to be hoisted out, in order to tow off the ships; but all the efforts to keep them from being carried near the reef were insufficient for the purpose. As the calm continued, the situation of the vessels became still more dangerous. Captain Cook, however, entertained hopes of getting round the western point of the reef and into the bay. But, about two o'clock in the afternoon, when he came before an opening or break of the reef, through which he had flattered himself that he might get with the ships, he found, on sending to examine it, that there was not a sufficient depth of water. Nevertheless, this opening caused such an indraught of the tide of flood through it, as was very near proving fatal to the Resolution; for as soon as the vessels got into the stream, they were carried towards the reef with great impetuosity. The moment the captain perceived this he ordered one of the warping machines, which was held in readiness, to be carried out with about 400 fathoms of rope, but it did not produce the least effect; they had now in prospect the horrors of shipwreck. They were not more than two cables' length from the breakers; and, though it was the only probable method which was left of saving the ships, they could find no bottom to anchor. An anchor, however, they did drop; but before it took hold and brought them up, the Resolution was in less than three fathoms of water, and struck at every fall of the sea, which broke close under her stern in a dreadful surf, and threatened her crew every moment with destruction. Happily the Adventure brought up without striking. Presently the Resolution's crew carried

out two other anchors with hawsers to each, and these found ground a little without the bower. By heaving upon them and cutting away the bower anchor, the ship was gotten afloat, where Captain Cook and his men lay for some time in the greatest anxiety. At length the tide ceased to act in the same direction, upon which the captain ordered all the boats to try to tow off the vessel. Having found this to be practicable, the two anchors were hove up, and at that moment a light air came off from the land, by which the boats were so much assisted that the Resolution soon got clear of all danger. Cook then ordered all the boats to assist the Adventure, but before they reached her, she was under sail with the land breeze, and in a little time joined her companion, leaving behind her three anchors, her coasting cable, and two hawsers, which were never recovered. Thus were they once more safe at sea, after narrowly escaping being wrecked on the very island at which, but a few days before, they had most ardently wished to arrive. It was a peculiarly happy circumstance that the calm continued, after bringing the ships into so dangerous a state. For if the sea breeze, as is usually the case, had set in, the Resolution must inevitably have been lost, and probably the Adventure likewise.

On the 17th the Resolution and Adventure anchored in Oaiti-piha Bay, immediately upon which they were crowded with the inhabitants of the country, who brought with them cocoanuts, plantains, bananas, apples, yams, and other roots, which were exchanged for nails and beads.

The fruits which were procured at Oaiti-piha Bay contributed greatly to the recovery of the sick people belonging to the Adventure. Many of them who had been so ill as to be incapable of moving without assistance, were in the course of a few days so far recovered that they were able to walk about of themselves. When the Resolution entered the bay she had but one scorbutic man on board, a marine, who had long been sick, and who died the second day after her arrival of a complication of disorders, which had not the least mixture of the scurvy.

On the 24th the ships put to sea, and arrived the next evening in Matavai Bay. Before they could come to an anchor the decks were crowded with the natives, many of whom Captain Cook knew, and by most of whom he was well remembered. Among a large multitude of people who were

collected together upon the shore was Otoo, the king of the island. Captain Cook paid him a visit on the following day at Oparree, the place of his residence. Upon his return from Oparree, he found the tents and the astronomer's observatories set up, on the same spot from which the transit of Venus had been observed in 1769. The sick, being twenty in number from the Adventure and one from the Resolution, all of whom were ill of the scurvy, he ordered to be landed, and he appointed a guard of marines on shore, under the command of Lieutenant Edgcumbe.

The sick being nearly recovered, the water completed, and the necessary repairs of the ships finished, Captain Cook determined to put to sea without delay. Accordingly, on the 1st of September, he ordered everything to be removed from the shore, and the vessels to be unmoored, in which employment the men were engaged the greater part of the day. In the afternoon of the same day Lieutenant Pickersgill returned from Attahourou, to which place he had been sent by the captain for the purpose of procuring some hogs that had been promised.

From Matavai Bay Cook directed his course for the island of Huaheine, where he intended to touch. This island he reached the next day, and, early in the morning of the 3d of September, made sail for the harbor of Owharre, in which he soon came to an anchor. The Adventure, not happening to turn into the harbor with equal facility, got ashore on the north side of the channel, but by the timely assistance which had previously been provided in case such an accident should occur, she was gotten off again without receiving any damage. As soon as both the ships were in safety, Captain Cook, together with Captain Furneaux, landed upon the island, and was received by the natives with the utmost cordiality.

Early on the 7th of September, while the ships were unmooring, the captain went to pay his farewell visit to Oree, and took with him such presents as had not only a fancied value but a real utility. He left, also, with the chief the inscription plate that had before been in his possession, and another small copper plate on which were engraved these words: "Anchored here, his Britannic Majesty's ships Resolution and Adventure, September, 1773." These plates, together with some medals, were put up in a bag, of which Oree promised to take care, and to produce them to the first

ship or ships that should arrive at the island. Having, in return, given a hog to Captain Cook, and loaded his boat with fruit, they took leave of each other, when the good old chief embraced the commander with tears in his eyes.

During the short stay of the vessels at Huaheine, they were very successful in obtaining supplies of provisions. No less than three hundred hogs, besides fowls and fruit, were procured; and had the ships continued longer at the place the quantity might have been greatly increased. Such was the fertility of this small island that none of these articles of refreshment were seemingly diminished, but appeared to be as plentiful as ever.

From Huaheine they sailed for Ulietea, where trade was carried on in the usual manner and a most friendly intercourse renewed. Here Tupia was inquired after with particular eagerness, and the inquirers were perfectly satisfied with the account which was given of the occasions of that Indian's decease.

They were as successful in procuring provisions at Ulietea as they had been at Huaheine. A larger quantity was offered than the ships could contain, so that the ships were enabled to proceed on their voyage with no small degree of comfort and advantage.

Cook, by his second visit to the Society Islands, gained a further knowledge of their general state and of the customs of the inhabitants. It appeared that a Spanish ship had been lately at Otaheite, and the natives complained that a disease had been communicated to them by the people of this vessel, which, according to their account, affected the head, the throat, and the stomach, and at length ended in death.

On the 7th of October they proceeded on their voyage. The intention was to sail directly to Queen Charlotte's Sound in New Zealand for the purpose of taking in wood and water, after which they were to pursue their discoveries to the south and the east.

It was the 3d of November before Captain Cook brought the Resolution into Ship Cove, in Queen Charlotte's Sound. He had been beating about the island from the 21st of October, during which time his vessel was exposed to a variety of tempestuous weather. In one instance he had been driven off the land by a furious storm, which lasted two days, and which would have been dangerous in the highest degree had

it not fortunately happened that it was fair overhead, and that there was no reason to be apprehensive of a lee-shore. In the course of the bad weather which succeeded this storm the Adventure was separated from the Resolution, and was never seen or heard of through the remainder of the voyage.

During the stay in Queen Charlotte's Sound they were plentifully supplied with fish, procured from the natives at a very easy rate; and, besides the vegetables afforded by their own gardens, they everywhere found plenty of scurvy-grass and celery. These Captain Cook ordered to be dressed every day for all his hands. By the attention which he paid to his men in the article of provisions they had for three months lived principally on a fresh diet, and, at this time, there was not a sick or scorbutic person on board.

The morning before the captain sailed he wrote a memorandum containing such information as he thought necessary for Captain Furneaux in case he should put into the sound. This memorandum was buried in a bottle under the root of a tree in the garden, and in such a manner that it could not avoid being discovered if either Captain Furneaux or any other European should chance to arrive at the Cove.

On the 26th of November they sailed from New Zealand in search of a continent, and steered to the south, inclining to the east. Some days after this they reckoned themselves to be antipodes to their friends in London, and consequently were at as great a distance from them as possible. The first ice was seen on the 12th of December, farther south than the first ice which had been met with after leaving the Cape of Good Hope in the preceding year. In the progress of the voyage ice-islands continually occurred, and the navigation became more and more difficult and dangerous. When they were in the latitude of $67^{\circ} 5'$ south, they all at once got within such a cluster of these islands, together with a large quantity of loose pieces, that to keep clear of them was a matter of the utmost difficulty. On the 22d of the month the Resolution was in the highest latitude she had yet reached, $67^{\circ} 31'$, and circumstances now became so unfavorable that they thought of returning more to the north.

By the 30th of the month, through obstructions and difficulties which, from their similar nature to those already mentioned, it would be tedious to repeat, Captain Cook reached to the seventy-first degree of latitude.

In pursuing his course to the north he became well assured that the discovery of Juan Fernandez, if any such was ever made, could be nothing more than a small island. At this time the captain was attacked by a bilious colic, the violence of which confined him to his bed.

On the 6th and 7th of April they came within sight of four islands, which they knew to be the Marquesas. To one of them, which was a new discovery, Cook gave the name of Hood's Island, after one of the crew by whom it was first seen. As soon as the ship was brought to an anchor in Madre de Dios, or Resolution Bay, in the island of St. Christina, a traffic commenced. Too many of the Indians having come on board, Cook, who was going in a boat to find a convenient place for mooring the ship, said to the officers: "You must look well after these people or they will certainly carry off something or other." Scarcely had he gotten into the boat when he was informed that they had stolen an iron stanchion from the opposite gangway, and were carrying it off. Upon this he ordered his men to fire over the canoe till he could get round in the boat, but not to kill any one. Such, however, was the noise made by the natives that the order was not heard, and the unhappy thief was killed at the first shot. All the Indians retired with precipitation in consequence of this unfortunate accident.

From the Marquesas Captain Cook steered for Otaheite with a view of falling in with some of the islands discovered by former navigators, and especially by the Dutch, the situation of which had not been accurately determined. In the course of the voyage he passed a number of low islets, connected together by reefs of coral rocks. One of the islands, on which Lieutenant Cooper went ashore, with two boats well armed, was called by the natives Tiookea. On the 22d of April they reached the Island of Otaheite and anchored in Matavai Bay. Cook's chief reason for putting in at this place was to give Wales an opportunity of ascertaining the error of the watch by the known longitude, and to determine anew her rate of going; the first object was to land the instruments, and to erect tents for the reception of a guard, and such other people as it was necessary to have on shore. Sick there were none, for the refreshments which had been obtained at the Marquesas had removed every complaint of that kind.

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connection with the inhabitants, and a continual interchange of visits was preserved between him and Otoo, Towha, and other chiefs of the country. His traffic with them was greatly facilitated by his having fortunately brought with him some red parrot feathers from the Island of Amsterdam.

On the 15th of May, 1774, he anchored in O'Wharre Harbor, in the island of Huaheine, and was immediately visited by his friend Oree; the same agreeable intercourse subsisted between the captain and this good old chief which had formerly taken place. Red feathers were not here in such estimation as they had been at Otaheite; the natives of Huaheine having the good sense to give a preference to the more useful articles of nails and axes.

At Ulietea, to which the captain next directed his course, the events that occurred were nearly similar to those which have already been related.

On the 6th of June, 1774, the day after they left Ulietea, they saw land, which they found to be a low reef island about four leagues in compass and of a circular form. This was Howe Island, which had been discovered by Captain Wallis. Nothing remarkable occurred from this day to the 16th, when land was again seen. It was another reef island; and being a new discovery Captain Cook gave it the name of Palmerston Island, in honor of Lord Palmerston.

In pursuing his course to the west-southwest Cook passed by a number of small islands, and, on the 26th, anchored on the north side of Anamocka, or Rotterdam. A traffic immediately commenced with the natives, who brought what provisions they had, being chiefly yams and shaddocks, which they exchanged for nails, beads and other small articles. Here, as in many former cases, the captain was put to some trouble on account of the thievish disposition of the inhabitants.

While the captain was on shore at Anamocka he got the names of twenty islands, which lie between the northwest and the northeast. Some of them were in sight; and two of them, which are most to the west, are remarkable on account of their great height.

Anamocka was first discovered by Tasman, and by him was named Rotterdam. It is of a triangular form, and each side extends about three and a half or four miles. From the northwest to the south of the island, round by the east and

north, it is encompassed by a number of small isles, sandbanks and breakers. An end could not be seen to their extent to the north, and they may possibly reach as far to the south as Amsterdam, or Tongataboo. Together with Midleburg, or Eaoowe, and Pilstart these form a group containing about three degrees of latitude and two of longitude. To this group Captain Cook had given the name of the Friendly Isles, or Archipelago, from the firm alliance and friendship which seemed to subsist among their inhabitants, and from their courteous behavior to strangers.

Pursuing their course to the west they discovered land on the 1st of July; and, upon a nearer approach, found it to be a small island, to which, on account of the number of turtle that were seen upon the coast, Captain Cook gave the name of Turtle Isle. On the 16th high land was seen bearing southwest, which no one doubted to be the Tierra Austral del Espiritu Santo of Quiros, and which is called by de Bougainville the Great Cyclades. After exploring the coast for some days the captain came to an anchor in a harbor in the island of Mallicollo.

To the harbor, in which the commander anchored while he lay at Mallicollo, he gave the name of Port Sandwich. It has many advantages, with regard to depth of water, shelter from the winds, and lying so near the shore as to be a cover to those of a ship's company who may be carrying on any necessary operations at land.

Soon after they had gotten to sea, which was on the 23d of July, they discovered three or four small islands that before had appeared to be connected. At this time the Resolution was not far from the Isle of Ambrym, the Isle of Paoom and the Isle of Apee. On the next morning several more islands were discovered, lying off the southeast point of Apee, and constituting a group which Captain Cook called Shepherd's Isles.

Amidst the number of islands that were continually seen there was only one on which no inhabitants were discerned. This consisted chiefly of a remarkable peaked rock, which was only accessible to birds, and which obtained the name of the Monument.

In the farther course of the ship to the southward they drew near to certain lands, which they found to consist of one large island, the southern and western extremities of

which extended beyond their sight. Three or four smaller ones lay off its north side. To the two principal of these Captain Cook gave the name of Montagu and Hinchinbrook; and the large island he named Sandwich, in honor of his noble patron the Earl of Sandwich. This island, which was spotted with woods and lawns, agreeably diversified over the whole surface, and which had a gentle slope from the hills down to the sea-coast, exhibited a most beautiful and delightful prospect. The examination of it was not, however, so much an object as to proceed to the south, in order to find the southern extremity of the Archipelago.

Pursuing his discoveries Captain Cook came in sight of an island, which was afterwards known to be called by the natives Erromango. On account of the treacherous behavior of the inhabitants of Erromango Captain Cook called a promontory, or peninsula, Traitor's Head.

From this place he sailed for an island which had been discovered before at a distance, and at which, on account of its wanting a large quantity of wood and water, he was resolved to make some stay.

The island where they now stayed was found, upon inquiry, to be called, by the inhabitants, Tanna; and three others in its neighborhood were distinguished by the names of Immer, Erronan, or Footoona and Annatom.

In the island of Tanna was a volcano, which sometimes made a dreadful noise, and, at each explosion, which happened every three or four minutes, threw up fire and smoke in prodigious columns. At one time great stones were seen high in the air. At the foot of the hill were several hot springs; and on the side of it Mr. Forster found some places whence smoke of a sulphureous smell issued, through cracks or fissures of the earth. A thermometer, that was placed in a little hole made in one of them, and which in the open air stood only at eighty, rose to a hundred and seventy. In another instance the mercury rose to a hundred and ninety-one. The commander being desirous of getting a near and good view of the volcano set out with a party for that purpose. But the men met with so many obstructions from the inhabitants, who were jealous of their penetrating far into the country, that they thought proper to return. For this jealousy of the islanders Captain Cook, in his narrative, has made a very judicious and candid apology.

On the 20th of August Captain Cook sailed from Tanna, and employed all the remainder of the month in a further examination of the islands around him. He had now finished his survey of the whole Archipelago and had gained a knowledge of it infinitely superior to what had ever been attained before. The northern islands of this Archipelago were first discovered in 1606 by that eminent navigator Quiros, who considered them as part of the southern continent, which at that time and until very lately was supposed to exist. M. de Bougainville was the next person by whom they were visited, in 1768. This gentleman, however, besides landing in the Isle of Lepers, only made the discovery that the country was not connected, but composed of islands, which he called the Great Cyclades. Captain Cook, besides ascertaining the situation and extent of these islands, added to them several new ones which had hitherto been unknown and explored the whole. He thought that he had obtained a right to name them; accordingly he bestowed upon them the appellation of the New Hebrides. His title to this honor will not be disputed in any part of Europe, and certainly not by so enlightened and liberal a people as the French nation.

The season of the year now rendered it necessary for the commander to return to the south, while he had yet some time to explore any land he might meet with between the New Hebrides and New Zealand, at which last place he intended to touch that he might refresh his people and renew his stock of wood and water for another southern course. With this view he sailed on the 1st of September, and on the 4th land was discovered, in a harbor belonging to which the Resolution came to an anchor the next day.

Cook went on shore at this place. He ordered an inscription to be cut on a large tree, setting forth the name of the ship, the date of the year and other circumstances, which testified that the English were the first discoverers of the country. This he had done before wherever such a ceremony seemed necessary. How the island was called by the natives he could never learn; therefore it was given the name of New Caledonia.

As the Resolution pursued her course from New Caledonia land was discovered, which on a nearer approach was found to be an island of good height and five leagues in circuit. Captain Cook named it Norfolk Isle.

From Norfolk Isle they steered for New Zealand, it being his intention to touch at Queen Charlotte's Sound that he might refresh his crew and put the ship in a condition to encounter the southern latitudes. On the 18th of October he anchored before Ship Cove in that sound, and the first thing he did after landing was to look for the bottle he had left on shore, in which was a memorandum. It was taken away, and it soon appeared from indubitable circumstances that the Adventure had been in the cove after it was quitted by the Resolution.

Upon visiting the gardens which had been formed at Motuara they were found almost in a state of nature, having been wholly neglected by the inhabitants. Many, however, of the articles were in a flourishing condition, and showed how well they liked the soil in which they were planted. It was several days before any of the natives made their appearance, but when they did so and recognized Captain Cook and his friends, joy succeeded fear. The captain's whole intercourse with the New Zealanders during this his third visit to Queen Charlotte's Sound was peaceable and friendly, and one of them, a man apparently of consequence, whose name was Pedero, presented him with a staff of honor, such as the chiefs generally carry. In return he dressed Pedero, who had a fine person and a good presence, in a suit of old clothes, of which he was proud.

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CHAPTER V.

CAPTAIN COOK'S VOYAGES—(*Continued*).

Captain Cook's Departure from New Zealand—Terra del Fuego—Possession Bay—Isle of Georgia—Returning to England—Appointed a Captain in Greenwich Hospital—An Expedition to find a Northwestern Passage—Captain Cook in Command—Captain Cook sails on the 9th of July, 1776—Teneriffe—Crossing the Equator—Arrival at Cape of Good Hope—Prince Edward's Island—Kerguelen and Van Diemen's Land—Again at Queen Charlotte's Sound—Ten Men eaten up by the New Zealanders—Otaheite—Omai returned to his Native Isle—The Coast of New Allion—Prince William's Island—Oonalaska—The Land of the Tschuktschi—Return to Oonalaska—Meeting Russian Seamen—Return to the Sandwich Islands—Owhyhee—Krakatoa Bay—The Death of Captain Cook as related by an Eye-witness—Murdered by the Savages—His Body terribly mutilated—An interesting Document from the hands of Dr. Benjamin Franklin—Captain Clerke, the Successor of Captain Cook, visits Kamschatka—He returns Southward and dies—Captain Gore succeeds in command.

ON the 10th of November, 1774. Captain Cook took his departure from New Zealand in further pursuit of his great object, the determination of the question concerning the existence of a southern continent. Having sailed till the 27th in different degrees of latitude, extending from 43° to $55^{\circ} 48'$ S., he gave up all hopes of finding any more land in this ocean. He came, therefore, to the resolution of steering directly for the west entrance of the Straits of Magalhaens, with a view of coasting the south side of Terra del Fuego, round Cape Horn to the Strait Le Maire.

In the prosecution of his voyage he on the 17th of December reached the west coast of Terra del Fuego; and, having continued to range it till the 20th, he came to an anchor in a place which he afterwards named Christmas Sound.

The inhabitants of Terre del Fuego Captain Cook found to be of the same nation that he had formerly seen in Success Bay. They were a little, ugly, half-starved, beardless race, and almost naked. It was their own fault that they were not better clothed, nature having furnished them with ample materials for that purpose. By lining their sealskin cloaks with the skins and feathers of aquatic birds, by making the cloaks themselves larger, and by applying the same materials

to different parts of clothing they could render their dress much more warm and comfortable.

On the 28th of December Cook sailed from Christmas Sound, and proceeded on his voyage round Cape Horn, through Strait le Maire to Staten Island. This famous cape was passed by him on the next day, when he entered the Southern Atlantic Ocean.

In ranging Staten Island a good port was found situated three leagues to the westward of St. John and in a northern direction. Upon account of the day on which the discovery of this port was made, being the 1st of January, 1775, Captain Cook gave it the name of New Year's Harbor.

From Staten Island he sailed, on the 4th of January, with a view of discovering that extensive coast laid down by Dalrymple in his chart, in which is the gulf of St. Sebastian.

Proceeding in his voyage, land was seen on the 14th, which was at first mistaken for an island of ice. It was in a manner wholly covered with snow. From the person by whom it was first discovered it obtained the name of Willis's Island. Another island, of a larger compass, on account of the vast number of birds which were upon it, was called Bird Isle. A more extensive range of country had been seen for some time, which was reached on the 17th, and where he landed, on the same day, in three different places. The head of the bay in which he came to shore was terminated by particular ice-cliffs of considerable height. Pieces were continually breaking off and floating out to sea; and while they were in the bay a great fall happened, which made a noise like a cannon. No less savage and horrible was the interior of the country.

When Cook landed in the bay he displayed the English colors; and, under a discharge of small arms, took possession of the country. In his return to the ship Captain Cook brought with him a quantity of seals and penguins, which were an acceptable present to the crew; not from the want of provisions, which were plentiful in every kind, but from a change of diet. Any sort of fresh meat was preferred by most on board to salt. The captain himself was now, for the first time, tired of the salted meats of the ship. To the bay in which he had been he gave the name of Possession Bay.

The land in which this bay lies was at first judged to be part of a great continent. But, upon coasting round the whole country, it was proved to a demonstration that it was

only an island. In honor of his Majesty Captain Cook called it the Isle of Georgia.

The captain, on the 25th of January, steered from the Isle of Georgia, and, on the 27th, computed that he was in latitude sixty, south. Farther than this he did not intend to go, unless some signs of meeting with land should be discovered. There was now a long hollow swell from the west, which was a strong indication that no land was to be met with in that direction. On an elevated coast, which appeared in sight upon the 31st of January, Captain Cook bestowed the appellation of the Southern Thule. The reason of his giving it this name was, that it is the most southern land that had ever yet been discovered. It is everywhere covered with snow, and displays a surface of vast height. To the more distinguished tracts of country which were discovered from the 31st of January to the 6th of February, Captain Cook gave the names of Cape Bristol, Cape Montague, Saunders's Isle, Candlemas Isles, and Sandwich's Land.

Nothing could exceed the inclination of Captain Cook, if it had been practicable, to penetrate farther to the south. If he had risked all that had been done during the voyage, for the sake of discovering and exploring a coast, which, when discovered and explored, would have answered no end whatever, or have been of the least use either to navigation or geography, he would justly have been charged with inexcusable temerity. He determined, therefore, to alter his course to the east, and to sail in quest of Bouvet's Land, the existence of which was yet to be settled. Accordingly, this was the principal object of his pursuit, from the 6th to the 22d of the month. By that day he had run down thirteen degrees of longitude, in the very latitude assigned for Bouvet's Land. No such land was discovered; nor did any proofs occur of the existence of Cape Circumcision.

Captain Cook had now made the circuit of the southern ocean in a high latitude, and traversed it in such a manner as to leave not the least room for the possibility of there being a continent, unless near the pole, and out of the reach of navigation. By twice visiting the tropical sea, he had not only settled the situation of some old discoveries, but made many new ones; and, indeed, had left little more to be accomplished. The intention of the voyage had been fully answered and the southern hemisphere sufficiently explored. A final

end was hereby put to the searching after a southern continent, which, for nearly two centuries past, had occasionally engrossed the attention of some of the maritime powers, and had been urged with great ardor by philosophers and geographers in different ages.

The great purpose of his navigation round the globe being thus completed, the captain began to direct his views towards England. He had, indeed, some thoughts of protracting his course a little longer, for the sake of revisiting the place where the French discovery is said to be situated. But, upon mature deliberation, he determined to lay aside his intention. He considered that, if this discovery had really been made, the end would be as fully answered as if it had been done by himself. It could only be an island; and if a judgment might be formed from the degree of cold which they had experienced in that latitude, it could not be a fertile one. Besides, he would have been kept two months longer at sea, and that in a tempestuous latitude, with which the ship was not in a condition to struggle. Her sails and rigging were so much worn that something was giving way every hour; and there was nothing left, either to repair or to replace them. The provisions of the vessel were in such a state of decay that they afforded little nourishment, and the company had been long without refreshments. Indeed, the crew were yet healthy, and would cheerfully have gone wherever the captain judged it proper to lead them; but he was fearful lest the scurvy should lay hold of them at a time when none of the remedies were left by which it could be removed. He thought that it would have been cruel in him to have continued the fatigues and hardships they were perpetually exposed to longer than was absolutely necessary.

From all these considerations, which were evidently the dictates of wisdom and humanity, Captain Cook was induced to spend no longer time in searching for the French discoveries, and to steer for the Cape of Good Hope.

As the Resolution approached towards the Cape of Good Hope, she fell in first with a Dutch East Indiaman from Bengal, commanded by Captain Bosch, and next with an English Indiaman, being the True Briton, from China, of which Captain Broadly was the commander. Captain Bosch very obligingly offered sugar, arrack, and whatever he had to spare; and Captain Broadly sent them fresh provisions, tea,

and various articles which could not fail of being peculiarly acceptable to people in their situation. Even a parcel of old newspapers furnished no slight gratification to persons who had so long been deprived of obtaining any intelligence concerning their country and the state of Europe. From these vessels Captain Cook received some information with regard to what had happened to the Adventure after her separation from the Resolution.

On the 22d of March, 1775, he anchored in Table Bay, where he found several Dutch ships, some French, and the Ceres, an English East Indiaman, bound directly for England, under the command of Captain Newte, by whom he sent a copy of the preceding part of his journal, some charts, and other drawings, to the Admiralty.

During the circumnavigation of the globe, from the period of our commander's leaving the Cape of Good Hope to his return to it again, he had sailed no less than twenty thousand leagues. This was an extent of voyage nearly equal to three times the equatorial circumference of the earth, and which had never been accomplished before, by any ship, in the same compass of duration. In such a case it could not be a matter of surprise that the rigging and sails of the Resolution should be essentially damaged, and even worn out.

The repairs of the ship having been completed, and the necessary stores gotten on board, together with a fresh supply of provisions and water, he left the Cape of Good Hope on the 27th of April, and reached the island of St. Helena on the 15th of May. Here he stayed till the 21st, when he sailed for the island of Ascension, where he anchored on the 28th. From this place he directed his course, on the 31st, for the island of Fernando de Noronha, at which he arrived on the 9th of June.

On the 14th of July the captain came to an anchor in the Bay of Fayal, one of the Azores Islands. On the 30th of the same month he anchored at Spithead, and landed at Portsmouth, having been absent from Great Britain three years and eighteen days, in which time, and under all changes of climate, he had lost but four men, and only one of them by sickness.

In acknowledgment of his services our navigator, on the 9th of August, was promoted to the rank of Post Captain, and three days afterwards a Captain in Greenwich Hospital,

a situation which was intended to afford him a pleasing and honorable reward for his illustrious labors and services.

It had long been a favorite object with navigators to discover a shorter, a more commodious, and a more profitable course of sailing to Japan and China, and, indeed, to the East Indies in general, than by making the tedious circuit of the Cape of Good Hope. To find a western passage round North America had been attempted by several bold adventurers, from Frobisher's first voyage, in 1576, to those of James and of Fox, in 1631. By these expeditions a large addition was made to the knowledge of the northern extent of America, and Hudson's and Baffin's Bays were discovered. But the wished-for passage, on that side, into the Pacific Ocean, was still unattained. Nor were the various attempts of our countrymen and of the Dutch to find such a passage, by sailing around the north of Asia in an eastern direction, attended with better success. Wood's failure, in 1676, appears to have concluded the long list of unfortunate expeditions in that century. The discovery, if not absolutely despaired of, had been unsuccessful in such a number of instances, that it ceased, for many years, to be an object of pursuit.

The question was again revived in the eighteenth century, and Captains Middleton, Smith and Moore were sent out by the government in 1741 and 1746. But, though an act of parliament had been passed, which secured a reward of twenty thousand pounds to the discoverer of a passage, the accomplishment of this object continued at as great a distance as ever.

For the conduct of an enterprise, the operations of which were intended to be so new, so extensive and so various, it was evident that great ability, skill and experience were indispensably necessary. That Captain Cook was of all men the best qualified for carrying it into execution was a matter that could not be called in question. But, however ardently it might be wished that he would take upon him the command of the service, no one presumed to solicit him upon the subject. The benefits he had already conferred on science and navigation, and the labors and dangers he had gone through, were so many and great that it was not deemed reasonable to ask him to engage in fresh perils. At the same time nothing could be more natural than to consult him

upon everything relative to the business; and his advice was particularly requested with regard to the most proper person for conducting the voyage. To determine this point the Captain, Sir Hugh Palliser and Mr. Stephens were invited to Lord Sandwich's to dinner. Captain Cook was so fired with the contemplation and representation of the object that he started up, and declared that he himself would undertake the direction of the enterprise. It is easy to suppose with what pleasure the men received a proposal which was so agreeable to their secret wishes, and which they thought of the highest importance towards attaining the ends of the voyage. No time was lost by the Earl of Sandwich in laying the matter before the king; and Captain Cook was appointed to the command of the expedition on the 10th of February, 1776.

The command and the direction of the enterprise being thus happily settled, it became an object of great importance to determine what might be the best course that could be given to the voyage. All former navigators round the globe had returned to Europe by the Cape of Good Hope. But to Captain Cook the arduous task was now assigned of attempting it by reaching the high northern latitudes between Asia and America. The usual plan, therefore, of discovery was reversed; so that instead of a passage from the Atlantic to the Pacific, one from the latter into the former was to be tried.

That everything might be done which could facilitate the success of the grand expedition, Lieutenant Pickersgill was sent out, in 1776, with directions to explore the coasts of Baffin's Bay; and, in the next year, Lieutenant Young was commissioned not only to examine the western parts of that bay, but to endeavor to find a passage, on that side, from the Atlantic to the Pacific Ocean. Nothing was performed by either of these gentlemen that promoted the purposes of Captain Cook's voyage.

Two vessels were fixed upon by government for the intended service; the *Resolution* and the *Discovery*. The command of the former was given to Captain Cook, and of the other to Captain Clerke. To the *Resolution* was assigned the same complement of officers and men which she had during her preceding voyage; and the only difference in the establishment of the *Discovery* from that of the *Adventure*

was in the single instance of her having no marine officer on board.

From the time of the two ships being put into commission the greatest degree of attention and zeal was exerted by the Earl of Sandwich to have them equipped in the most complete manner. Both the vessels were supplied with as much of every necessary article as could conveniently be stowed, and with the best of each kind that could be procured.

Every preparation for the voyage being completed Captain Cook received an order to proceed to Plymouth, and to take the *Discovery* under his command. Having, accordingly, given the proper directions to Captain Clerke he sailed from the Nore to the Downs on the 25th of June, 1776. On the 30th of the same month he anchored in Plymouth Sound, where the *Discovery* had already arrived. It was the 8th of July before he received his instructions for the voyage; and, at the same time, he was ordered to proceed, with the *Resolution*, to the Cape of Good Hope. Captain Clerke, who was detained in London by some unavoidable circumstances, was to follow as soon as he should join his ship.

In the evening of the 12th Captain Cook stood out of Plymouth Sound, and pursued his course down the channel.

It being found that there was not hay and corn sufficient for the subsistence of the stock of animals on board, till the arrival of the ships at the Cape of Good Hope, Captain Cook determined to touch at Teneriffe. This island he thought better adapted to the purpose of procuring these articles and other refreshments than Madeira. On the 1st of August he anchored in the road of Santa Cruz.

In the course of the voyage, between the latitudes of 12° and 7° north, the weather was generally dark and gloomy. The rains were frequent, and accompanied with that close and sultry weather which too often brings on sickness, in this passage. At such a time the worst consequences are to be apprehended; and commanders of ships cannot be too much upon their guard. It is necessary for them to purify the air between decks with fire and smoke, and to oblige their people to dry their clothes at every opportunity. The constant observance of these precautions on board the *Resolution* was attended with such success, that the captain had now fewer sick men than on either of his former voyages. This was the more remarkable, as, in consequence of the seams of the

vessel having opened so wide as to admit the rain when it fell, there was scarcely a man who could lie dry in his bed; and the officers in the gun-room were all driven out of their cabins by the water that came through the sides. When settled weather returned the caulkers were employed in repairing these defects, by caulking the decks and inside weather-works of the ship; for the humanity of the captain would not trust the workmen over the sides while the Resolution was at sea.

On the 1st of September, 1776, they crossed the equator. While, on the 8th, Captain Cook was near the eastern coast of Brazil he was at considerable pains to settle its longitude, which, till some better astronomical observations are made on shore in that country, he concluded to be thirty-five degrees and a half, or thirty-six degrees west at most.

On the 18th of October the Resolution came to an anchor in Table Bay at the Cape of Good Hope; and the usual compliments having been paid to Baron Plettenberg, the Governor, Captain Cook immediately applied himself to his customary operations. Nothing remarkable occurred till the evening of the 31st, when a tempest arose from the southeast, which lasted three days, and which was so violent that the Resolution was the only ship in the bay that rode out the gale without dragging her anchors. The effects of the storm were sensibly felt by the men on shore; for their tents and observatory were torn to pieces, and their astronomical quadrant narrowly escaped irreparable damage. On the 3d of November the tempest ceased, and the next day the English were enabled to resume their different employments.

It was not till the 10th of the month that Captain Cook had the satisfaction of seeing the Discovery arrive in the bay, and effect her junction with the Resolution. She had sailed from England on the 1st of August, and would have reached the Cape of Good Hope a week sooner if she had not been driven from the coast by the late storm. Every assistance was immediately given to put her into proper condition for proceeding on her voyage.

Captain Cook having given a copy of his instructions to Captain Clerke, and an order directing him how to proceed in case of a separation, weighed from Table Bay on the 30th of November, 1776, though it was not till the 3d of December that he got clear of the land. As they pursued their course

to the southeast, a very strong gale which they had from the westward was followed by a mountainous sea, in consequence of which the Resolution rolled and tumbled so much that the cattle on board were preserved with the utmost difficulty. Soon after, several of the goats, together with some sheep, died, notwithstanding all the care to prevent it.

On the 12th land was seen, which upon a nearer approach was found to consist of two islands. That which lies most to the south, and is the largest, was judged by Captain Cook to be about fifteen leagues in circuit. The northerly one is about nine leagues in circuit, and the two islands are at the distance of five leagues from each other. These two islands, together with four others, which lie from nine to twelve degrees of longitude more to the east, and nearly in the same latitude, had been discovered by Captains Marion Du Fresne and Crozet, French navigators, in January, 1772, on their passage in two ships from the Cape of Good Hope to the Philippine Islands. As no names had been assigned to them in a chart of the Southern Ocean, which Captain Crozet communicated to Captain Cook in 1775, Cook distinguished the two larger ones by calling them Prince Edward's Islands, after his majesty's fourth son. To the other four, with a view of commemorating the discoverers, he gave the name of Marion's and Crozet's Islands.

On the 24th, steering to the eastward, a fog clearing up a little, which had involved them for some time, and which had rendered their navigation both tedious and dangerous, land was seen, bearing south-southeast. Upon a nearer approach it was found to be an island of considerable height, and about three leagues in circuit. Another island of the same magnitude was soon after discovered, and in a short space a third, besides some smaller ones.

The island last mentioned is a high, round rock, which was named Bligh's Cap. Cook had received some very slight information concerning it at Teneriffe, and his sagacity in tracing it was such as immediately led him to determine that it was the same that M. De Kerguelen had called the Isle of Rendezvous. The weather beginning to clear up, Captain Cook steered in for the land, of which a faint view had been obtained in the morning. This was Kerguelen's Land. No sooner had they gotten off Cape Francois, than they observed the coast to the southward to be much indented by projecting

points and bays, from which circumstance they were sure of finding a good harbor. Accordingly such a harbor was speedily discovered, in which the ships came to an anchor on the 25th, being Christmas Day. Upon landing they found the shore almost entirely covered with penguins and other birds, and with seals. The latter, which were not numerous, having been unaccustomed to visitors, were so insensible of fear that as many as were wanted for the purpose of making use of their fat or blubber, were killed without difficulty. Fresh water was so plentiful that every gully afforded a large stream, but not a single tree or shrub, or the least sign of it, could be met with, and but very little herbage of any sort. Before Captain Cook returned to his ship he ascended the first ridge of rocks, that rose in a kind of amphitheatre above one another, in hopes of obtaining a view of the country; in which, however, he was disappointed, for, previously to his reaching the top, there came on so thick a fog that he could scarcely find his way down again. In the evening the seine was hauled at the head of the harbor, but only half a dozen small fish were caught. As no better success attended a trial which was made the next day with hook and line, the only resource for fresh provision was in birds, the store of which was inexhaustible.

Nothing very remarkable occurred till the 24th of January, 1777, when they discovered the coast of Van Diemen's Land; and, on the 26th, the ships came to an anchor in Adventure Bay. Captain Cook, as soon as he had anchored, ordered the boats to be hoisted out, in one of which he went himself, to look for the most commodious place for obtaining the necessary supplies. Wood and water were found in abundance, and in places sufficiently convenient; but grass, which was most wanted, was scarce, and, at the same time, very coarse. Necessity, however, obliged them to take up with such as could be procured.

On the 30th of January, 1777, Captain Cook sailed from Adventure Bay, and on the 12th of February came to an anchor at his old station of Queen Charlotte's Sound, in New Zealand. Being unwilling to lose any time, he commenced his operations that very afternoon. By his order several of the empty water-casks were immediately landed, and a place was begun to be cleared for setting up the two observatories, and the erection of tents to accommodate a guard, and the

rest of the company whose business might require them to remain on shore. They had not long been at anchor before a number of canoes filled with natives came alongside of the ships. However, very few of them would venture on board, which appeared the more extraordinary as the captain was well known to them all, and they could not be insensible how liberally he had behaved to them on former occasions. There was one man in particular whom he had treated with remarkable kindness during the whole of his last stay in this place, and yet neither professions of friendship nor presents could prevail upon him to enter the *Resolution*.

There was a real cause for this shyness on the part of the New Zealanders. A dreadful event had happened to some of Captain Furneaux's crew while he lay in Queen Charlotte's Sound, after he had finally separated from Captain Cook in the former voyage. Ten men, who had been sent out in the large cutter to gather wild greens for the ship's company, were killed in a skirmish with the natives. What was the cause of the quarrel could not be ascertained, as not one of the company survived to relate the story. Lieutenant Burney, who was ordered to go in search of them, found only some fragments of their bodies, from which it appeared that they had been converted into the food of the inhabitants. It was the remembrance of this event and the fear of its being revenged which now rendered the New Zealanders so fearful of entering the vessels. From the conversation of Omai, who was on board the *Adventure* when the melancholy affair happened, they knew that it could not be unknown to Captain Cook. The captain, therefore, judged it necessary to use every endeavor to assure them of the continuance of his friendship, and that he should not disturb them on account of the catastrophe. It was most probably in consequence of this assurance that they soon laid aside all manner of restraint and distrust.

While Cook, on the 16th, was making an excursion for the purpose of collecting food for his cattle, he embraced the opportunity to inquire, as accurately as possible, into the circumstances which had attended the melancholy fate of Captain Furneaux's men. Omai was his interpreter. The result of the inquiry was, that the quarrel first took its rise from some thefts, in the commission of which the natives were detected; that there was no premeditated plan.

At the request of Omai, Captain Cook consented to take with him two youths from New Zealand. That they might not quit their native country under any deluding ideas of visiting it again, the captain took care to inform their parents in the strongest terms that they would never return. This declaration seemed, however, to make no kind of impression. The father of the youngest lad resigned him with an indifference which he would scarcely have shown at parting with his dog, and even stripped the boy of the little clothing he possessed, delivering him quite naked. This was not the case with the mother of the other youth. She took her leave of him with all the marks of tender affection that might be expected between a parent and a child on such an occasion; but she soon resumed her cheerfulness, and went away wholly unconcerned.

On the 25th of February Captain Cook stood out of Queen Charlotte's Sound, and by the 27th got clear of New Zealand. No sooner had the ships lost sight of the land, than the two young adventurers from that country, one of whom was nearly eighteen years of age and the other about ten, began deeply to repent of the step they had taken. It was the experience of the sea-sickness which gave this turn to their reflections, and all the soothing encouragement that could be thought of was but of little avail. They wept, both in public and in private, and made their lamentation in a kind of song, that seemed to be expressive of the praises of their country and people, from which they were to be separated forever. In this disposition they continued for many days, but as their sea-sickness wore off, and the tumult of their minds subsided, the fits of lamentation became less and less frequent, and at length entirely ceased. By degrees their native country and their friends were forgotten, and they appeared to be as firmly attached as if they had been born in the ship.

In the prosecution of the voyage Captain Cook met with unfavorable winds, and it was not till the 29th of March that land was discovered. It was found to be an inhabited island, the name of which, as was learned from two of the natives who came off in a canoe, is Mangeea. The commander examined the coast with his boats, and had a short intercourse with some of the inhabitants. Not being able to find a proper harbor for bringing the ships to an anchorage he was obliged to leave the country unvisited, though it seemed

capable of supplying all the wants of the crew. The island of Mangeea is full five leagues in circuit, and of a moderate and pretty equal height. It has, upon the whole, a pleasing aspect, and might be made a beautiful spot by cultivation. The inhabitants, who appeared to be both numerous and well fed, seemed to resemble those of Otaheite and the Marquesas in the beauty of their persons; and the resemblance, as far as could be judged in so short a compass of time, takes place with respect to their general disposition and character.

From the coast of Mangeea Cook sailed in the afternoon of the 30th of March, and on the next day land was again seen, within four leagues of which the ships arrived on the 1st of April. They could then pronounce it to be an island, nearly of the same appearance and extent with that which had lately been left.

The island was called Wateoo by the natives, and was a beautiful spot, having a surface composed of hills and plains, which were covered with a verdure rendered extremely pleasant by the diversity of its hues. Its inhabitants were very numerous, and many of the young men were perfect models in shape; beside which they had complexions as delicate as those of the women, and appeared to be equally amiable in their dispositions. In their manners, their general habits of life, and their religious ceremonies and opinions, these islanders had a near resemblance to the people of Otaheite and its neighboring isles; and their language was well understood both by Omai and the two New Zealanders.

The next place visited by Captain Cook was a small island called Wennooa-ette, or Otakoo-taia, to which Lieutenant Gore was sent at the head of a party, who procured about a hundred cocoanuts for each ship, and some grass, together with a quantity of the leaves and branches of young trees for the cattle. Though, at this time, no inhabitants were found in Wennooa-ette, yet, as there remained indubitable marks of its being at least occasionally frequented, the Lieutenant left a hatchet and several nails to the full value of what had been taken away.

On the 5th of April the commander directed his course for Harvey's Island, which was only at the distance of fifteen leagues, and where he hoped to procure some refreshments. This island had been discovered by him in 1773, during his last voyage, when no traces were discerned of its having any

inhabitants. It was now experienced to be well peopled, and by a race of men who appeared to differ much, both in person and disposition, from the natives of Wateoo.

In pursuing his course, agreeably to this resolution, he reached Palmerston Island, and at a neighboring islet, both of which were uninhabited, some little relief was obtained. The boats soon procured a load of scurvy-grass and young cocoanut trees. On the 16th Omai, being on shore, caught, with a scoop-net, in a very short time, as much fish as served the whole party for dinner.

On the 28th of April Captain Cook touched at the island of Komango, and on the 1st of May he arrived at Annamooka. The station he took was the very same which he had occupied when he visited the country three years before; and it was probably almost in the same place where Tasman, the first discoverer of this and some of the neighboring islands, anchored in 1643. A friendly intercourse was immediately opened with the natives, and everything was settled to the captain's satisfaction. He received the greatest civilities from Toobou, the chief of Annamooka, and Taipa, a chief from the island of Komango, attached himself to the crew in so extraordinary manner that, in order to be near them in the night, as well as in the day, he had a house brought on men's shoulders a full quarter of a mile, and placed close to the shed which was occupied by our party on shore. On the 6th the commander was visited by a great chief from Tongataboo, whose name was Feenou.

The stay which Captain Cook made at the Friendly Islands was between two and three months, during which time, some accidental differences excepted, there subsisted the utmost cordiality.

On the 17th of July he took his final leave of the Friendly Islands and resumed his voyage. An eclipse was observed in the night between the 20th and the 21st, and on the 8th of August land was discovered. Some of the inhabitants, who came off in canoes, seemed earnestly to invite them to go on shore; but Captain Cook did not think proper to run the risk of losing the advantage of a fair wind for the sake of examining an island which appeared to be of little consequence. Its name, as was learned from the natives who spoke the Otaheite language, is Toobouai.

Pursuing his course the captain reached Otaheite on the

12th, and steered for Oheitepeha Bay with an intention to anchor there in order to draw what refreshments he could from the southeast part of the island before he went down to Matavai. Omai's first reception amongst his countrymen was not entirely of a flattering nature. Though several persons came on board who knew him, and one of them was his brother-in-law, there was nothing remarkably tender or striking in their meeting. An interview which Omai had on the 13th with his sister was agreeable to the feelings of nature, for their meeting was marked with expressions of tender affection more easy to be conceived than described. In a visit, likewise, which he received from an aunt, the old lady threw herself at his feet, and plentifully bedewed them with tears of joy.

Captain Cook was informed by the natives that since he was at the island in 1774 two ships had been twice in Oheitepeha Bay, and had left animals in the country. These, on further inquiry, were found to be hogs, dogs, goats, one bull, and a ram. That the vessels which had visited Otaheite were Spanish was plain from an inscription that was cut upon a wooden cross, standing at some distance from the front of a house which had been occupied by the strangers.

On the 24th of August Captain Cook quitted the southeast part of Otaheite and resumed his old station in Matavai Bay. Immediately upon his arrival he was visited by Otoo, the king of the whole island, and their former friendship was renewed; a friendship which was continued without interruption, and cemented by a perpetual succession of civilities, good offices, and entertainments. One of the commander's first objects was to dispose of all the European animals which were in the ships. Accordingly, he conveyed to Oparre, Otoo's place of residence, a peacock and hen, a turkey-cock and hen, one gander and three geese, a drake and four ducks. The geese and ducks began to breed before the navigators left their present station. There were already at Otoo's several goats and the Spanish bull, which was one of the finest animals of the kind that was ever seen. To the bull Captain Cook sent the three cows he had on board together with a bull of his own, to all which were added the horse and mare, and the sheep that remained in the vessels.

At this time a war was on the point of breaking out between the inhabitants of Eimeo and those of Otaheite; and

by the latter Captain Cook was requested to take a part in their favor. With this request, however, though enforced by frequent and urgent solicitations, the captain refused to comply.

The manner in which the commander was freed from a rheumatic complaint, that consisted of a pain extending from the hip to the foot, deserves to be recorded. Otoo's mother, his three sisters, and eight other women went on board for the express purpose of undertaking the cure of his disorder. He accepted of their friendly offer. As many of them as could get round him began to squeeze him with both hands, from head to foot, but more particularly in the part where the pain was lodged. This operation, which is called *Romee*, is universally practised among these islanders; being sometimes performed by the men, but more generally by the women.

Captain Cook, who now had come to the resolution of departing soon from Otaheite, accompanied, on the 27th, Otoo to Oparre, and examined the cattle and poultry, which he had consigned to his friend's care at that place. Everything was in a promising way, and properly attended. The captain procured from Otoo four goats, two of which he designed to leave at Ulietea, where none had as yet been introduced, and the other two he proposed to reserve for the use of any islands he might chance to meet with in his passage to the north. On the next day Otoo came on board, and informed our commander that he had gotten a canoe which he desired him to carry home as a present to the *Earee rahie no Pretane*.

From Otaheite they sailed, on the 30th of September, to Eimeo, where they came to an anchor on the same day. At this island the transactions which happened were, for the most part, very unpleasant. A goat was stolen, and the recovery of it was a matter of no small importance; Captain Cook was determined to effect this at any rate. Accordingly he made an expedition across the island, in the course of which he set fire to six or eight houses, and burnt a number of war canoes. At last, in consequence of a peremptory message to Maheine, the Chief of Eimeo, that not a single canoe should be left in the country, or an end be put to the contest, unless the animal in his possession should be restored, the goat was brought back. This quarrel was as much regretted on the part of the captain as it could be on

that of the natives. It grieved him to reflect, that, after refusing the pressing solicitations of his friends at Otaheite to favor their invasion of this island, he should find himself so speedily reduced to the necessity of engaging in such hostilities as perhaps had been more injurious to them than Towha's expedition.

On the 11th of October the ships departed from Eimeo, and the next day arrived at Owharre harbor, on the west side of Huaheine. The grand business at this island was the settlement of Omai. In order to obtain the consent of the chiefs of the island, the affair was conducted with great solemnity. Omai dressed himself very properly on the occasion; brought with him a suitable assortment of presents; went through a variety of religious ceremonies, and made a speech, the topics of which had been dictated to him by Captain Cook. The result of the negotiation was, that a spot of ground was assigned him, the extent of which, along the shore of the harbor, was about two hundred yards, and its depth, to the foot of the hill, somewhat more. A proportionable part of the hill was included in the grant. This business having been adjusted in a satisfactory manner, the carpenters of both ships were employed in building a small house for Omai, in which he might secure his European commodities. At the same time some of the English made a garden for his use, in which they planted shaddocks, vines, pine-apples, melons, and the seeds of several other vegetable articles. All of these Captain Cook had the satisfaction of seeing in a flourishing state before he left the island.

At Huaheine Omai found a brother, a sister, and a brother-in-law, by whom he was received with great regard and tenderness. But though these people were faithful and affectionate in their attachment to him, the Captain discovered, with concern, that they were of too little consequence in the island to be capable of rendering him any positive service. They had not either authority or influence to protect his person or property; and, in such a situation, there was reason to apprehend that he might be in danger of being stripped of all his possessions as soon as he should cease to be supported by the power of the English. To prevent this, if possible, the commander advised him to conciliate the favor and engage the patronage and protection of two or three of the principal chiefs, by a proper distribution of some of his movables;

with which advice he prudently complied. Captain Cook, however, did not entirely trust to the operations of gratitude, but had recourse to the more forcible motive of intimidation. With this view he took every opportunity of signifying to the inhabitants, that it was his intention to return to the island again after being absent the usual time, and that, if he did not find Omai in the same state of security in which he left him, all those whom he should then discover to have been his enemies should feel the weight of his resentment.

When Omai's house was nearly finished, and many of his movables were carried ashore, a box of toys excited the admiration of the multitude in a much higher degree than articles of a more useful nature. With regard to his pots, kettles, dishes, plates, drinking-mugs, glasses, and the whole train of domestic accommodations, which, in our estimation, are so necessary and important, scarcely any one of his countrymen would condescend to look upon them. Omai himself, being sensible that these pieces of English furniture would be of no great consequence in his present situation, wisely sold a number of them, among the people of the ships, for hatchets, and other iron tools, which had a more intrinsic value in this part of the world, and would give him a more distinguished superiority over those with whom he was to pass the remainder of his days.

The European weapons of Omai consisted of a musket, bayonet, and cartridge-box; a fowling-piece, two pair of pistols, and two or three swords or cutlasses. With the possession of these warlike implements he was highly delighted; and it was only to gratify his eager desire for them, that Captain Cook was induced to make him such presents. The captain would otherwise have thought it happier for him to be without fire-arms, or any European weapons, lest an imprudent use of them (and prudence was not his most distinguished talent) should rather increase his dangers than establish his superiority.

Before the captain sailed from Huaheine, he had the following inscription cut on the outside of Omai's house:

Georgius Tertius, Rex, 2 Novembris, 1777.

Naves { Resolution, Jac. Cook, Pr.
Discovery, Car. Clerke, Pr.

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On the same day Omai took his final leave of the navigators, in doing which he bade farewell to all the officers in a very affectionate manner. He sustained himself with a manly resolution till he came to Captain Cook, when his utmost efforts to conceal his tears failed; and he continued to weep all the time that the boat was conveying him to shore. Not again to resume the subject, I shall here mention that when the captain was at Ulietea, a fortnight after this event, Omai sent two men with the satisfactory intelligence that he remained undisturbed by the people of Huaheine, and that everything succeeded well with him, excepting in the loss of his goat, which had died in kidding. This intelligence was accompanied with a request that another goat might be given him, together with two axes. The commander, esteeming himself happy in having an additional opportunity of serving him, despatched the messengers back with the axes, and a couple of kids, male and female, which were spared for him out of the Discovery.

The fate of the two youths who had been brought from New Zealand must not be forgotten. As they were extremely desirous of continuing with the English, Captain Cook would have carried them to England with him, if there had appeared the most distant probability of their ever being restored to their own country. Tiarooa, the eldest of them, was a very well-disposed young man, with strong natural sense, and a capacity of receiving any instruction. He seemed to be fully convinced of the inferiority of New Zealand to these islands, and resigned himself, though not without some degree of reluctance, to end his days, in ease and plenty, in Huaheine. The other had formed so strong an attachment to the navigators, that it was necessary to take him out of the ship, and carry him ashore by force. This necessity was the more painful as he was a witty, smart boy, and, on that account, a great favorite on board. Both these youths became a part of Omai's family.

On the 3d of November the ships came to an anchor in the harbor of Ohamaneno, in the island of Ulietea. The observatories being set up on the 6th, and the necessary instruments having been carried on shore, the two following days were employed in making astronomical observations. In the night between the 12th and 13th, John Harrison, a marine, who was sentinel at the observatory, deserted, taking with

him his arms and accoutrements. Captain Cook exerted himself on this occasion with his usual vigor. He went himself in pursuit of the deserter, who, after some evasion on the part of the inhabitants, was surrendered. He was found sitting between two women, with the musket lying before him; and all the defence he was able to make was that he had been enticed away by the natives. As this account was probably the truth, as it appeared he had remained upon his post till within ten minutes of the time when he was to have been relieved, the punishment which the captain inflicted upon him was not very severe.

The last of the Society Islands was Bolabola, where they arrived on the 8th of December. The chief view in passing over to this island was to procure from its monarch, Opoony, an anchor which M. De Bougainville had lost at Otaheite, and which had been conveyed to Bolabola. It was not from a want of anchors that Captain Cook was desirous of making the purchase, but to convert the iron of which it consisted into a fresh assortment of trading articles, these being now very much exhausted. The captain succeeded in his negotiation, and amply rewarded Opoony for giving up the anchor.

Although seventeen months had elapsed since Captain Cook's departure from England, during which time he had not, upon the whole, been unprofitably employed, he was sensible that, with respect to the principal object of his instructions, it was now only the commencement of his voyage; and that, therefore, his attention was to be called anew to every circumstance which might contribute towards the safety of the crew and the ultimate success of the expedition. Accordingly, he had examined into the state of the provisions whilst he was at the Society Islands; and, as soon as he had left them, and had gotten beyond the extent of his former discoveries, he ordered a survey to be taken of all the boatswain's and carpenter's stores which were in the ships, that he might be fully informed of their quantity and condition, and by that means know how to use them to the greatest advantage.

It was on the 8th of December, the very day on which he had touched there, that the commander sailed from Bolabola. In the night between the 22d and 23d he crossed the line, in the longitude of $203^{\circ} 15'$ east, and on the 24th land was dis-

covered, which was found to be one of those low, uninhabited islands that are so frequent in this ocean. Here our voyagers were successful in catching a large quantity of turtle, which supplied them with an agreeable refreshment; and here, on the 28th, an eclipse of the sun was observed. On account of the season of the year, the captain called the land, which he judged to be about fifteen or twenty leagues in circumference, Christmas Island.

On the 2d of January, 1778, the ships resumed their course to the northward, and though several evidences occurred of the vicinity of land, none was discovered till the 18th, when an island made its appearance, bearing northeast by east. Soon after more land was seen, lying towards the north, and entirely detached from the former. The succeeding day was distinguished by the discovery of a third island, in the direction of west-northwest, and as far distant as the eye could reach. In steering towards the second island they had some doubt whether the land before them was inhabited; but this matter was speedily cleared up by the putting off of some canoes from the shore, containing from three to six men each. Upon their approach, the English were agreeably surprised to find that they spoke the language of Otaheite, and of the other countries which had lately been visited.

On the 2d of February, 1778, they pursued their course to the northward. The long-looked-for coast of New Albion was seen on the 7th of March, the ships being then in the latitude of $44^{\circ} 33'$ north, and in the longitude of $235^{\circ} 20'$ east. As the vessels ranged along the west side of America, Captain Cook gave names to several capes and headlands which appeared in sight. At length, on the 29th, the captain came to an anchor at an inlet where the appearance of the country differed much from what had been seen before, being full of mountains, the summits of which were covered with snow, while the valleys between them and the grounds on the sea-coast, high as well as low, were covered to a considerable breadth with high, straight trees, which formed a beautiful prospect, as of one vast forest. It was immediately found that the coast was inhabited; and there soon came off to the Resolution three canoes, containing eighteen of the natives, who could not, however, be prevailed upon to venture themselves on board. Notwithstanding this, they displayed a peaceable disposition, showed great readiness to part with

anything they had in exchange for what was offered them, and expressed a stronger desire for iron than for any other of our commercial articles, appearing to be perfectly acquainted with the use of that metal.

The ships having found an excellent inlet, the coasts of which appeared to be inhabited by a race of people who were disposed to maintain a friendly intercourse with strangers, Captain Cook's first object was to search for a commodious harbor, and he had little trouble in discovering what he wanted. A trade having immediately commenced, the articles which the inhabitants offered for sale were the skins of various animals, such as bears, wolves, foxes, deer, raccoons, and polecats. To these were added the skins in their native shape, garments made of them, another sort of clothing formed from the bark of a tree, and various different pieces of workmanship. But of all of the articles brought to market, the most extraordinary were human skulls, and hands not yet quite stripped of their flesh, some of which had evident marks of their having been upon the fire. The things which the natives took in exchange for their commodities were knives, chisels, pieces of iron and tin, nails, looking-glasses, buttons, or any kind of metal. Glass beads did not strike their imaginations, and cloth of every sort they rejected. Though commerce in general was carried on with mutual honesty, there were some among these people who were as much inclined to thieving as the islanders in the Southern Ocean.

On Captain Cook's first arrival in this inlet he had honored it with the name of King George's Sound, but he afterwards found that it is called Nootka by the natives.

On the 26th of April, the repairs of the ships having been completed, everything was ready for the captain's departure. When in the afternoon of that day the vessels were upon the point of sailing, the mercury in the barometer fell unusually low, and there was every other presage of an approaching storm, which might reasonably be expected to come from the southward. This circumstance induced the commander in some degree to hesitate, and especially as night was at hand, whether he should venture to sail or wait till the next morning. But his anxious impatience to proceed upon the voyage, and the fear of losing the present opportunity of getting out of the sound, made a greater impression upon his mind than any apprehension of immediate danger. He determined

to put to sea at all events, and accordingly carried his design into execution that evening. He was not deceived in his expectations of a storm. Scarcely were the vessels out of the sound before the wind increased to a strong gale, with squalls and rain, accompanied by so dark a sky that the length of the ships could not be seen. Happily the wind took a direction that blew them from the coast. On the 27th the tempest rose to a perfect hurricane, and the Resolution sprang a leak, but no material damage ensued.

The first place at which Captain Cook landed after his departure from Nootka Sound was at an island of eleven or twelve leagues in length, the southwest point of which lies in the latitude of $59^{\circ} 49'$ north, and the longitude of $216^{\circ} 58'$ east. He named it Kaye's Island.

At an inlet, where the ships came to an anchor on the 12th, and to which Captain Cook gave the appellation of Prince William's Sound, he had an opportunity not only of stopping the leak which the Resolution had sprung in the late storm, and of prosecuting his nautical and geographical discoveries, but of making considerable additions to his knowledge of the inhabitants of the American coast. From every observation which was made concerning the persons of the natives of this part of the coast it appeared that they had a striking resemblance to those of the Esquimaux and Greenlanders. Their canoes, their weapons, and their instruments for fishing and hunting are likewise exactly the same, in point of materials and construction, that are used in Greenland. The animals in the neighborhood of Prince William's Sound were, in general, similar to those which are found at Nootka. One of the most beautiful skins here offered for sale was, however, that of a small animal, which seemed to be peculiar to the place. Anderson was inclined to think that it is the animal which is described under the name of the *Cafan Marmot*.

On the 27th of June, 1778, they reached an island that is known by the name of Oonalaska, the inhabitants of which behaved with a degree of politeness uncommon to savage tribes. A young man who had upset his canoe, being obliged by this accident to come on board the ship, went down into Captain Cook's cabin upon the first invitation without expressing the least reluctance or uneasiness. His own clothes being wet the captain gave him others, in which he dressed himself with as much ease as any Englishman could have

done. From the behavior of this youth, and that of some of the rest of the natives, it was evident that these people were no strangers to Europeans and to several of their customs. There was something, however, in the English ships that greatly excited their attention, for such as could not come off in canoes assembled on the neighboring hills to look at them. In one instance it was apparent that the inhabitants were so far from having made any progress in politeness that they were still immersed in the most savage manners. Soon after the vessels had come to an anchor at Oonalaska, a native of the island brought on board such another note as had been given to Captain Clerke. He presented it to Captain Cook; but, as it was written in the Russian language, and could be of no use to the English, though it might be of consequence to others, the captain returned it to the bearer and dismissed him with a few presents, for which he expressed his thanks by making several low bows as he retired.

On the 3d of August they had advanced to the latitude of $62^{\circ} 34'$. A great loss was sustained by them in the death of Anderson, the surgeon of the Resolution, who had been lingering under a consumption for more than twelve months. He was a young man of a cultivated understanding and agreeable manners, and was well skilled in his own profession; besides which he had acquired a considerable degree of knowledge in other branches of science. How useful an assistant he was to Captain Cook has often appeared in the present narrative, and is fully displayed in the voyage at large. Soon after he had breathed his last, land having been seen at a distance, which was supposed to be an island, they honored it with the appellation of Anderson's Island. The next day he removed Law, the surgeon of the Discovery, into the Resolution, and appointed Samwell, the surgeon's first mate of the Resolution, to be surgeon of the Discovery.

On the 9th the captain anchored under a point of land to which he gave the name of Cape Prince of Wales, and which is remarkable by being the most western extremity of America hitherto explored. This extremity is distant from the eastern Cape of Siberia only thirteen leagues, and thus had the glory of ascertaining the vicinity of the two continents, which had only been conjectured from the reports of the neighboring Asiatic inhabitants, and the imperfect observations of the Russian navigators.

Resuming his course on the 10th Captain Cook anchored in a bay, the land of which was at first supposed to be a part of the island of Alaska which was laid down in Stæhlin's map. But, from the figure of the coast, from the situation of the opposite shore of America, and from the longitude the captain soon began to think it was more probably the country of the Tchucktchi on the eastern extremity of Asia, which had been explored by Behring in 1728. In the result it appeared that this was in fact the case.

From the country of the Tchucktchi they steered on the 11th of July to the east, in order to get nearer to the coast of America. After that, proceeding to the north, they reached on the 17th the latitude of $70^{\circ} 33'$. On this day a brightness was observed in the northern horizon, like that which is reflected from ice, and is commonly called the blink. This was at first but little noticed from a supposition that there was no probability of meeting with ice so soon; and yet the sharpness of the air and the gloominess of the weather had for two or three days past seemed to indicate a sudden change. In about an hour's time the sight of a large field of ice left Captain Cook no longer in doubt with regard to the cause of the brightness of the horizon. The ships, in the same afternoon, being then in the latitude of $70^{\circ} 41'$, were close to the edge of the ice, and not able to stand on any farther. On the 18th, when the vessels were in the latitude of $70^{\circ} 44'$, the ice on the side of them was as compact as a wall, and was judged to be at least ten or twelve feet in height. Farther to the north it appeared to be much higher. Its surface was extremely rugged, and in different places there were seen upon it pools of water. A prodigious number of sea-horses lay upon the ice, and some of them, on the 19th, were procured for food, there being at this time a want of fresh provisions. When the animals were brought to the vessels, it was no small disappointment to many of the seamen, who had feasted their eyes for several days with the prospect of eating them, to find that they were not sea-cows, as they had supposed, but sea-horses. This disappointment would not have been occasioned or the difference known had there not happened to be one or two sailors on board who had been in Greenland, and who declared what these animals were, and that it never was customary to eat them. Such, however, was the anxiety for a change of diet as to overcome this prejudice. They

lived upon the sea-horses as long as they lasted, and there were few who did not prefer them to the salt meat.

Captain Cook continued to the 29th to traverse the icy sea beyond Behring Strait in various directions and through numberless obstructions and difficulties. Every day the ice increased so as to preclude all hopes of attaining, at least during the present year, the grand object of the voyage. The season was now so far advanced, and the time in which the frost was expected to set in was so near at hand, that it would have been totally inconsistent with prudence to have made any further attempts till the next summer at finding a passage into the Atlantic. The attention was now directed to other important and necessary concerns. It was of great consequence to meet with a place where they might be supplied with wood and water. But the point which principally occupied the captain's thoughts was how he should spend the winter so as to make some improvements in geography and navigation, and, at the same time, to be in a condition to return to the north in further search of a passage in the ensuing summer.

Before Captain Cook proceeded far to the south he employed a considerable time in examining the sea and coasts in the neighborhood of Behring Strait, both on the side of Asia and America. In this examination he ascertained the accuracy of Behring so far as he went, demonstrated the errors with which Stæhlin's map of the New Northern Archipelago abounds, and made large additions to the geographical knowledge of this part of the world.

On the 2d of October, 1778, they came within sight of the island of Oonalaska, and anchored the next day in Samgannoodha Harbor. Here the first concern was to put the ships under the necessary repair; and, while the carpenters were employed in this business, one-third of the crew had permission, by turns, to go and collect the berries with which the island abounds, and which, though now beginning to be in a state of decay, did not a little contribute, in conjunction with spruce-beer, effectually to eradicate every seed of scurvy that might exist in either of the vessels. Such a supply of fish was likewise procured, as not only served for present consumption, but afforded a quantity to be carried out to sea; so that hence a considerable saving was made of the provisions of the ships, which was at this time an object of importance.

Captain Cook, on the 8th, received, by the hands of an Oonalaska man named Derramoushk, a very singular present, which was that of a rye loaf, or rather a pie in the form of a loaf, for it inclosed some salmon highly seasoned with pepper. This man had a like present for Captain Clerke, and a note for each of the two captains, written in a character which none on board could understand. It was natural to suppose that the presents came from some Russians in the neighborhood; and therefore a few bottles of rum, wine and porter were sent to these unknown friends in return; it being rightly judged that such articles would be more acceptable than anything else. Corporal Lediard of the marines, an intelligent man, was, at the same time, directed to accompany Derramoushk for the purpose of gaining further information; and with orders, if he met with any Russians, that he should endeavor to make them understand that they were Englishmen, and the friends and allies of their nation. On the 10th the corporal returned with three Russian seamen, or furriers, who, with several others, resided at Egoochshac, where they had a dwelling-house, some store-houses and a sloop of about thirty tons burthen. One of these men was either master or mate of this vessel; another of them wrote a very good hand, and was acquainted with figures; and all of them were sensible and well-behaved persons, who were ready to give Captain Cook every possible degree of information. The great difficulty in the reception and communication of intelligence arose from the want of an interpreter. On the 14th a Russian landed at Oonalaska whose name was Erasim Gregorioff Sin Ismyloff, and who was the principal person among his countrymen in this and the neighboring islands. Besides the intelligence which they derived from his conversations with Ismyloff, and which were carried on by signs, assisted by figures and other characters, they obtained from him the sight of two charts, and were permitted to copy them. Both of them were manuscripts and bore every mark of authenticity. The first included the *Penshinskian* Sea; the coast of Tartary down to the latitude of 41° ; the Kuril Islands and the peninsula of Kamtschatka. But it was the second chart that was the most interesting to Captain Cook; for it comprehended all the discoveries made by the Russians to the eastward of Kamtschatka towards America; which, however, exclusively of the voyages of Behring and Tscheri-

koff, amounted to little or nothing. Indeed, all the people with whom the captain conversed at Oonalaska agreed in assuring him, over and over again, that they knew of no other islands, besides those which were laid down upon this chart; and that no Russian had ever seen any part of the continent of America to the northward, excepting that which lies opposite to the country of the Tchucktchis.

When, on the 21st, Ismyloff took his final leave of the English navigators they intrusted to his care a letter to the Lords Commissioners of the Admiralty, in which was enclosed a chart of all the northern coasts the captain had visited. It was expected that there would be an opportunity of sending this letter, in the ensuing spring, to Kamtschatka or Ochotsk, and that it would reach Petersburg during the following winter. Ismyloff, who faithfully and successfully discharged the trust reposed in him, seemed to possess abilities that might entitle him to a higher station in life than that which he occupied. He had a considerable knowledge of astronomy, and was acquainted with the most useful branches of the mathematics. Captain Cook made him a present of an Hadley's octant; and, though it was probably the first he had ever seen, he understood, in a very short time, the various uses to which that instrument can be applied.

While the ships lay at Oonalaska they did not neglect to make a diligent inquiry into the productions of the island, and the general manners of the inhabitants.

All things having been gotten ready for his departure, Captain Cook put to sea on the 26th day of October, 1778, for the Sandwich Islands, it being his intention to spend a few months there and then to direct his course to Kamtschatka, so as to endeavor to reach that country by the middle of May in the ensuing summer.

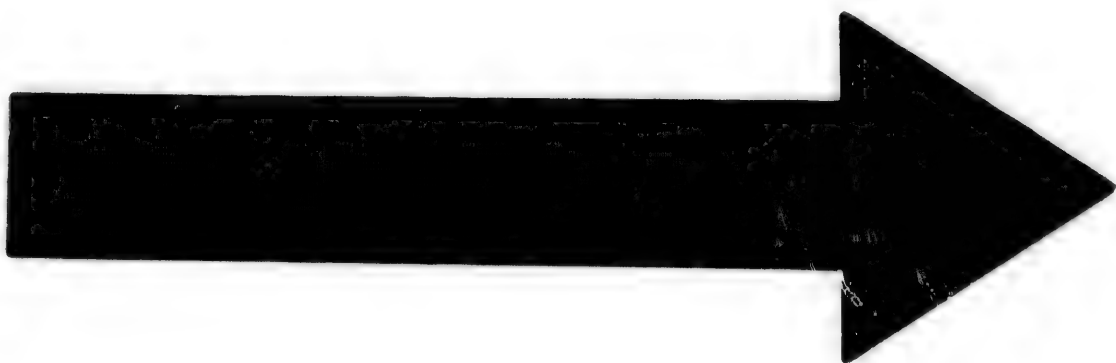
On the 26th of November, when the ships had proceeded southward till they came to the latitude of $20^{\circ} 55'$, land was discovered, which proved to be an island of the name of Mowee, that had not hitherto been visited. It is one of the group of the Sandwich Islands. As it was of the last importance to procure a supply of provisions at these islands, and experience had taught them that they could have no chance of succeeding in this object if it were left to every man's discretion to traffic for what he pleased, and in what manner he pleased, the captain published an order prohibiting

all persons from trading, excepting such as should be appointed by himself and Captain Clerke. Even these persons were enjoined to trade only for provisions and refreshments. While they lay off Mowee, which was for some days, a friendly intercourse was maintained with the inhabitants.

Another island was discovered on the 30th, which is called by the natives Owhyhee. As it appeared to be of greater extent and importance than any of the islands which had yet been visited in this part of the world, Captain Cook spent nearly seven weeks in sailing round and examining its coast. While he was thus employed the inhabitants came off from time to time in their canoes and readily engaged in traffic. In the conduct of this business the behavior of the islanders was more entirely free from suspicion and reserve than Cook had ever yet experienced. Not even the people of Otaheite, with whom he had been so intimately and repeatedly connected, had displayed such a full confidence in the integrity and good treatment of the English.

On the 16th of January, 1779, canoes arrived in such numbers from all parts that there were not less than a thousand around the two ships, most of them crowded with people and well laden with hogs and other productions of the island. It was a satisfactory proof of their friendly intentions that there was not a single person among them who had with him a weapon of any kind; trade and curiosity alone appearing to be the motives which actuated their conduct. Among such multitudes as at times were on board it will not be deemed surprising that some should betray a thievish disposition. One of them took out of the Resolution a boat's rudder and made off with it so speedily that it could not be recovered. Captain Cook judged this to be a favorable opportunity of showing these people the use of fire-arms, and accordingly he ordered two or three muskets and as many four-pounders to be fired over the canoe which carried off the rudder. It not being intended that any of the shot should take effect, the surrounding multitude of the natives seemed to be more surprised than terrified.

On the 17th the ships came to an anchor in the bay which had been examined by Bligh and which is called Krakatoa by the inhabitants. At this time the vessels continued to be much crowded with natives and were surrounded with a multitude of canoes. Captain Cook, in the whole course of his



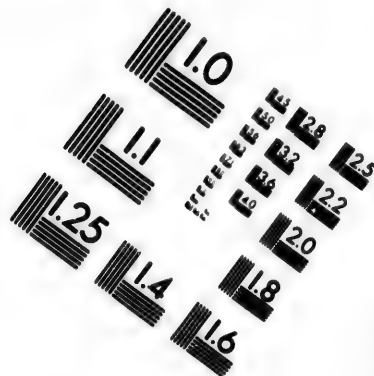
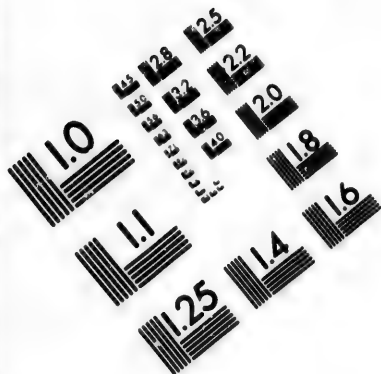
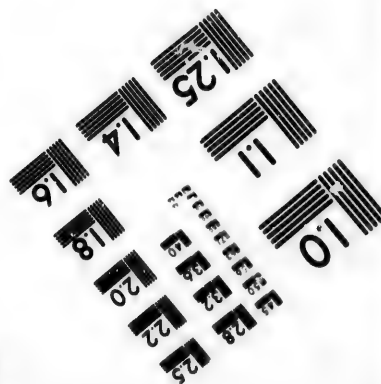
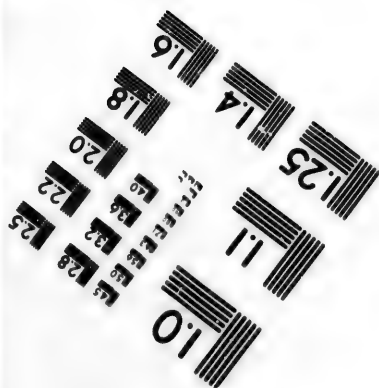
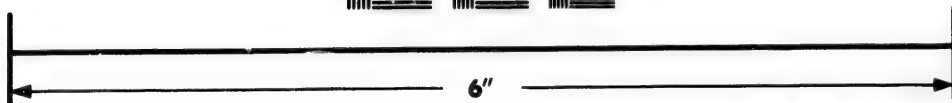
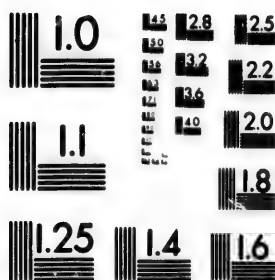


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voyages, had never seen so numerous a body of people assembled in one place. For, besides those who had come off to the ship in their canoes, all the shore of the bay was covered with spectators and many hundreds were swimming round like shoals of fish. The navigators could not avoid being greatly impressed with the singularity of this scene, and perhaps there were few on board that now lamented the want of success which had attended the endeavors of getting homeward the last summer by a northern passage. "To this disappointment," says the captain, "we owed our having it in our power to revisit the Sandwich Islands and to enrich the voyage with a discovery which, though the last, seemed in many respects to be the most important that had hitherto been made throughout the extent of the Pacific Ocean."

The reception which the captain met with from the natives on his proceeding to anchor in Krakatoa Bay was flattering in the highest degree. They came off from the shore in astonishing numbers and expressed their joy by singing and shouting and by exhibiting a variety of wild and extravagant gestures.

During the long cruise off the island of Owhyhee the inhabitants had almost universally behaved with great fairness and honesty in their dealings and had not shown the slightest propensity to theft. But after the arrival of the *Resolution* and *Discovery* in Krakatoa Bay the case was greatly altered. The immense crowd of islanders that blocked up every part of the ships not only afforded frequent opportunities of pilfering without risk of detection, but held out, even if they should be detected, a prospect of escaping with impunity from the superiority of their numbers.

Soon after the *Resolution* had gotten into her station Pareea and Kaneena brought on board a third chief, named Koah, who was represented as being a priest and as having in his early youth been a distinguished warrior. In the evening Captain Cook, attended by Bayley and King, accompanied Koah on shore. Upon this occasion the captain was received with very peculiar and extraordinary ceremonies, with ceremonies that indicated the highest respect on the part of the natives and which, indeed, seemed to fall little short of adoration.

Early on the 4th the ships sailed out of Krakatoa Bay, being followed by a large number of canoes. It was the com-

mander's design, before he visited the other islands, to finish the survey of Owhyhee, in hopes of meeting with a road better sheltered than the bay he had just left. In case of not succeeding in this respect, he purposed to take a view of the southeast part of Mowee, where he was informed that he should find an excellent harbor.

The circumstances which brought Captain Cook back to Krakatoa Bay and the unhappy consequences that followed are taken from Samwell's narrative of his death:

"On the 6th of February, 1779, we were overtaken by a gale of wind, and the next night the Resolution had the misfortune of springing the head of her foremast in such a dangerous manner that Captain Cook was obliged to return to Krakatoa in order to have it repaired, for we could find no other convenient harbor on the island.

"On the morning of the 10th of February we were within a few miles of the harbor, and were soon joined by several canoes in which appeared many of our old acquaintances, who seemed to have come to welcome us back. Among them was Cooaha, a priest. He had brought a small pig and some cocoanuts in his hand, which, after having chanted a few sentences, he presented to Captain Clerke. He then left us and hastened on board the Resolution to perform the same friendly ceremony before Captain Cook. Having but light winds all that day, we could not gain the harbor. In the afternoon a chief of the first rank, and nearly related to Kariopoo, paid us a visit on board the Discovery. His name was Kameamea. He was dressed in a very rich feathered cloak, which he seemed to have brought for sale, but would part with it for nothing except iron daggers. These the chiefs, some time before our departure, had preferred to every article; for, having received a plentiful supply of hatchets and other tools, they began to collect a store of warlike instruments. Kameamea procured nine daggers for his cloak, and, being pleased with his reception, he and his attendants slept on board that night.

"In the morning of the 11th of February the ships anchored again in Krakatoa bay, and preparation was immediately made for landing the Resolution's foremast. We were visited but by few of the Indians, because there were but few in the bay. On our departure those belonging to other parts had repaired to their several habitations, and were again to

collect from various quarters before we could expect to be surrounded by such multitudes as we had once seen in that harbor. In the afternoon I walked about a mile in the country to visit an Indian friend who had a few days before come near twenty miles in a small canoe to see me while the ship lay becalmed. As the canoe had not left us long before a gale of wind came on, I was alarmed for the consequence; however, I had the pleasure to find that my friend had escaped unhurt, though not without some difficulties. I take notice of this short excursion merely because it afforded me an opportunity of observing that there appeared no change in the disposition or behavior of the inhabitants. I saw nothing that could induce me to think that they were displeased with our return or jealous of the intention of our second visit. On the contrary, that abundant good nature which had always characterized them, seemed still to glow in every bosom and to animate every countenance.

"The next day, February the 12th, the ships were put under taboo by the chiefs, a solemnity, it seems, that was requisite to be observed before Kariopoo, the king, paid his first visit to Captain Cook after his return. He waited upon him the same day, on board the Resolution, attended by a large train, some of which bore the presents designed for Captain Cook, who received him in his usual friendly manner and gave him several articles in return. This amicable ceremony being settled, the taboo was dissolved, matters went on in the usual train, and the next day, February the 13th, we were visited by the natives in great numbers. The Resolution's mast was landed, and the astronomical observatories erected on their former situation. We landed at the town of Kavaroah, where we found a great number of canoes just arrived from different parts of the island, and the Indians busy in constructing temporary huts on the beach for their residence during the stay of the ships.

"On our return on board of the Discovery we learned that an Indian had been detected in stealing the armorer's tongs from the forge, for which he received a pretty severe flogging and was sent out of the ship. Notwithstanding the example made of this man, in the afternoon another had the audacity to snatch the tongs and a chisel from the same place, with which he jumped overboard and swam for the shore. The master and the midshipman were instantly

despatched after him in a small cutter. The Indian seeing himself pursued made for a canoe; his countrymen took him on board and paddled as swift as they could towards the shore; we fired several muskets at them, but to no effect, for they soon got out of the reach of our shot. Pareah, one of the chiefs, who was at that time on board the *Discovery*, understanding what had happened, immediately went ashore, promising to bring back the stolen goods. Our boat was so far distanced, in chasing the canoe which had taken the thief on board, that he had time to make his escape into the country. Captain Cook, who was then ashore, endeavored to intercept his landing; but, it seems, that he was led out of the way by some of the natives, who had officiously intruded themselves as guides. As the master was approaching near the landing-place he was met by some of the Indians in a canoe; they had brought back the tongs and chisel, together with another article that we had not missed, which happened to be the lid of the water-cask. Having recovered these things he was returning on board when he was met by the *Resolution's* pinnace with five men in her, who, without any orders, had come from the observatories to his assistance. Being thus unexpectedly reinforced he thought himself strong enough to insist upon having the thief, or the canoe which took him in, delivered up as reprisals. With that view he turned back; and having found the canoe on the beach he was preparing to launch it into the water when Pareah made his appearance, and insisted upon his not taking it away as it was his property. The officer not regarding him the chief seized upon him, pinioned his arms behind, and held him by the hair of the head—on which one of the sailors struck him with an oar; Pareah instantly quitted the officer, snatched the oar out of the man's hand and snapped it in two across his knee. At length the multitude began to attack our people with stones. They made some resistance, but were soon overpowered and obliged to swim for safety to the small cutter, which lay farther out than the pinnace. The officers not being expert swimmers retreated to a small rock in the water, where they were closely pursued by the Indians. One man darted a broken oar at the master; but his foot slipping at the time he missed him, which fortunately saved the officer's life. At last Pareah interfered and put an end to their violence. The gentlemen, knowing that his

presence was their only defence against the fury of the natives, entreated him to stay with them till they could get off in the boats; but that he refused and left them. The master went to seek assistance from the party at the observatories; but the midshipman chose to remain in the pinnace. He was very rudely treated by the mob, who plundered the boat of everything that was loose on board, and then began to knock her to pieces for the sake of the iron-work; but Pareah fortunately returned in time to prevent her destruction. He had met the other gentleman on his way to the observatories, and, suspecting his errand, had forced him to return. He dispersed the crowd again, and desired the gentlemen to return on board; they represented that all the oars had been taken out of the boat, on which he brought some of them back, and the gentlemen were glad to get off without further molestation. They had not proceeded far before they were overtaken by Pareah in a canoe; he delivered the midshipman's cap, which had been taken from him in the scuffle, joined noses with them in token of reconciliation, and was anxious to know if Captain Cook would kill him for what had happened. They assured him of the contrary, and made signs of friendship to him in return. He then left them and paddled over to the town of Kavaroah, and that was the last time we ever saw him. Captain Cook returned on board soon after much displeased with the whole of this disagreeable business; and the same night sent a lieutenant on board the *Discovery* to learn the particulars of it, as it had originated in that ship.

"It was remarkable that in the midst of the hurry and confusion attending this affair, Kanynah (a chief who had always been on terms particularly friendly with us) came from the spot where it happened, with a hog to sell, on board of the *Discovery*. It was of an extraordinary large size, and he demanded for it a pahowā, or dagger, of an unusual length. He pointed to us that it must be as long as his arm. Captain Clerke, not having one of that length, told him he would get one made for him by the morning, with which being satisfied he left the hog and went ashore without making any stay with us. It will not be altogether foreign to the subject to mention a circumstance that happened on board the *Resolution*. An Indian chief asked Captain Cook at his table if he was a *Tata Toa*, which means a fighting man, or a soldier.

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Being answered in the affirmative he desired to see his wounds. Captain Cook held out his right hand, which had a scar upon it, dividing the thumb from the finger, the whole length of the metacarpal bones. The Indian, being thus convinced of his being a Toa, put the same question to another gentleman present, but he happened to have none of those distinguishing marks. The chief then said that he himself was a Toa, and showed the scars of some wounds he had received in battle. Those who were on duty at the observatories were disturbed, during the night, with shrill and melancholy sounds issuing from the adjacent villages, which they took to be the lamentations of the women. Perhaps the quarrel between us might have filled their minds with apprehensions for the safety of their husbands; but, be that as it may, their mournful cries struck the sentinels with unusual awe and terror.

"To widen the breach between us some of the Indians, in the night, took away the Discovery's large cutter, which lay swamped at the buoy of one of her anchors. They had carried her off so quietly that we did not miss her till the morning, Sunday, February the 14th. Captain Clerke lost no time in waiting upon Captain Cook, to acquaint him with the accident; he returned on board with orders for the launch and cutter to go, under the command of the second lieutenant, and lie off the east point of the bay, in order to intercept all canoes that might attempt to get out; and, if he found it necessary, to fire upon them. At the same time the third lieutenant of the Resolution, with the launch and small cutter, was sent on the same service to the opposite point of the bay; and the master was despatched in the large cutter, in pursuit of a double canoe, already under sail, making the best of her way out of the harbor. He soon came up with her, and by firing a few muskets drove her on shore, and the Indians left her. This happened to be the canoe of Omea, a man who bore the title of Orono. He was on board himself, and it would have been fortunate if our people had secured him, for his person was held as sacred as that of the king. During this time Captain Cook was preparing to go ashore himself, at the town of Kavaroak, in order to secure the person of Kariopoo, before he should have time to withdraw himself to another part of the island out of our reach. This appeared the most effectual step that could be taken on the

present occasion for the recovery of the boat. It was the measure he had invariably pursued, in similar cases, at other islands in these seas, and it had always been attended with the desired success; in fact, it would be difficult to point out any other mode of proceeding on these emergencies likely to attain the object in view.

"We had reason to suppose that the king and his attendants had fled when the alarm was first given; in that case it was Captain Cook's intention to secure the large canoes which were hauled up on the beach. He left the ship about seven o'clock, attended by the lieutenant of marines, a sergeant, corporal, and seven private men; the pinnace's crew were also armed, and under the command of Mr. Roberts. As they rowed towards the shore Captain Cook ordered the launch to leave her station at the west point of the bay, in order to assist his own boat. This is a circumstance worthy of notice, for it clearly shows that he was not unapprehensive of meeting with resistance from the natives, or unmindful of the necessary preparation for the safety of himself and his people. I will venture to say that, from the appearance of things just at that time, there was not one beside himself who judged that such precaution was absolutely requisite; so little did his conduct on the occasion bear the marks of rashness or a precipitate self-confidence. He landed with the marines at the upper end of the town of Kavaroah; the Indians immediately flocked around as usual, and showed him the customary marks of respect, by prostrating themselves before him. There were no signs of hostilities, or much alarm among them. Captain Cook, however, did not seem willing to trust to appearances, but was particularly attentive to the disposition of the marines, and to have them kept clear of the crowd. He first inquired for the king's sons, two youths who were much attached to him, and generally his companions on board. Messengers being sent for them, they soon came to him, and informing him that their father was asleep at a house not far from them, he accompanied them thither, and took the marines along with them. As he passed along the natives everywhere prostrated themselves before him, and seemed to have lost no part of that respect they had always shown to his person. He was joined by several chiefs, among whom was Kanynah, and his brother, Koohowroah. They kept the crowd in order, according to

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their usual custom; and, being ignorant of his intention in coming on shore, frequently asked him if he wanted any hogs or other provisions; he told them that he did not, and that his business was to see the king. When he arrived at the house, he ordered some of the Indians to go in and inform Kariopoo that he waited without to speak with him. They came out two or three times, and instead of returning any answer from the king, presented some pieces of red cloth to him, which made Captain Cook suspect that he was not in the house; he therefore desired the lieutenant of marines to go in. The lieutenant found the old man just awakened from sleep, and seemingly alarmed at the message, but he came out without hesitation. Captain Cook took him by the hand and in a friendly way asked him to go on board, to which he very readily consented. Thus far matters appeared in a favorable train, and the natives did not seem much alarmed or apprehensive of hostility on our side, at which Captain Cook expressed himself a little surprised, saying that as the inhabitants of that town appeared innocent of stealing the cutter, he should not molest them, but that he must get the king on board. Kariopoo sat down before his door, and was surrounded by a great crowd; Kanynah and his brother were both very active in keeping order among them. In a little time, however, the Indians were observed arming themselves with long spears, clubs, and daggers, and putting on thick mats, which they use as armor. This hostile appearance increased, and became more alarming on the arrival of two men in a canoe from the opposite side of the bay, with the news of a chief, called Karemoo, having been killed by one of the Discovery's boats. In their passage across they had also delivered this account to each of the ships. Upon that information, the women, who were sitting upon the beach at their breakfasts, and conversing familiarly with our people in the boats, retired, and a confused murmur spread through the crowd. An old priest came to Captain Cook with a cocoanut in his hand, which he held out to him as a present, at the same time singing very loud. He was often desired to be silent, but in vain; he continued importunate and troublesome, and there was no such thing as getting rid of him or his noise. It seemed as if he meant to divert their attention from his countrymen, who were growing more tumultuous, and arming themselves in every quarter. Captain Cook,

being at the same time surrounded by a great crowd, thought his situation rather hazardous; he therefore ordered the lieutenant of marines to march his small party to the water-side, where the boats lay within a few yards of the shore. The Indians readily made a lane for them to pass and did not offer to interrupt them. The distance they had to go might be about fifty or sixty yards; Captain Cook followed, having hold of Kariopoo's hand, who accompanied him very willingly. He was attended by his wife, two sons, and several chiefs. The troublesome old priest followed, making the same savage noise. Keowa, the younger son, went directly into the pin-nace, expecting his father to follow; but just as he arrived at the water-side, his wife threw her arms about his neck, and, with the assistance of two chiefs, forced him to sit down by the side of a double canoe. Captain Cook expostulated with them, but to no purpose; they would not suffer the king to proceed, telling him that he would be put to death if he went on board the ship. Kariopoo, whose conduct seemed entirely resigned to the will of others, hung down his head, and appeared much distressed.

"While the king was in this situation, a chief, well known to us, of the name of Coho, was observed lurking near with an iron dagger partly concealed under his cloak, seemingly with the intention of stabbing Captain Cook or the lieutenant of marines. The latter proposed to fire at him, but Captain Cook would not permit it. Coho closing upon them, obliged the officer to strike him with his piece, which made him retire. Another Indian laid hold of the sergeant's musket, and endeavored to wrench it from him, but was prevented by the lieutenant's making a blow at him. Captain Cook, seeing the tumult increase, and the Indians growing more daring and resolute, observed that if he were to take the king off by force he could not do it without sacrificing the lives of many of his people. He then paused a little, and was on the point of giving his orders to re-embark when a man threw a stone at him, which he returned with a discharge of small shot. The man, having a thick mat before him, received little or no hurt; he brandished his spear, and threatened to dart it at Captain Cook, who being still unwilling to take away his life, instead of firing with ball knocked him down with his musket. He expostulated strongly with the most forward of the crowd upon their turbulent behavior. He had given up

all thoughts of getting the king on board, as it appeared impracticable, and his care was then only to act on the defensive, and to secure a safe embarkation for his small party, which was closely pressed by a body of several thousand people. Keowa, the king's son, who was in the pinnace, being alarmed on hearing the first firing, was, at his own entreaty, put on shore again; for even at that time, Mr. Roberts, who commanded her, did not apprehend that Captain Cook's person was in any danger, otherwise he would have detained the prince, which, no doubt, would have been a great check on the Indians. One man was observed behind a double canoe, in the action of darting his spear at Captain Cook, who was forced to fire at him in his own defence, but happened to kill another close to him equally forward in the tumult; the sergeant observing that he had missed the man he aimed at, received orders to fire at him, which he did, and killed him. By this time the impetuosity of the Indians was somewhat repressed; they fell back in a body and seemed staggered, but being pushed on by those behind, they returned to the charge, and poured a volley of stones among the marines, who, without waiting for orders, returned it with a general discharge of musketry, which was instantly followed by a fire from the boats. At this Captain Cook was heard to express his astonishment; he waved his hand to the boats, called to them to cease firing, and to come nearer in to receive the marines.

"Mr. Roberts immediately brought the pinnace as close to the shore as he could without grounding, notwithstanding the showers of stones that fell among the people; but, the lieutenant, who commanded in the launch, instead of pulling in to the assistance of Captain Cook, withdrew his boat farther off at the moment that everything seems to have depended upon the timely exertions of those in the boats. By his own account he mistook the signal, but be that as it may, this circumstance appears to me to have decided the fatal turn of the affair, and to have removed every chance which remained with Captain Cook of escaping with his life. The business of saving the marines out of the water, in consequence of that, fell altogether upon the pinnace, which thereby became so much crowded that the crew were, in a great measure, prevented from using their firearms, or giving what assistance they otherwise might have done to Captain Cook, so that he seems

at the most critical point of time to have wanted the assistance of both boats, owing to the removal of the launch. For, notwithstanding that they kept up a fire on the crowd from the situation to which they removed in that boat, the fatal confusion which ensued on her being withdrawn, to say the least of it, must have prevented the full effect, that the prompt co-operation of the two boats according to Captain Cook's orders must have had towards the preservation of himself and his people. At that time it was to the boats alone that Captain Cook had to look for his safety; for, when the marines had fired, the Indians rushed among them, and forced them into the water, where four of them were killed; their lieutenant was wounded, but fortunately escaped and was taken up by the pinnace. Captain Cook was then the only one remaining on the rock; he was observed making for the pinnace holding his left hand against the back of his head to guard it from the stones, and carrying his musket under the other arm. An Indian was seen following him, but with caution and timidity; for he stopped once or twice as if undetermined to proceed. At last he advanced upon him unawares, and with a large club, or common stake, gave him a blow on the back of the head, and then precipitately retreated. The stroke seemed to have stunned Captain Cook; he staggered for a few paces, then fell on his hand and one knee and dropped his musket. As he was rising, and before he could recover his feet, another Indian stabbed him in the back of the neck with an iron dagger. He then fell into a pool of water about knee-deep, where others crowded upon him and endeavored to keep him under; but struggling very strongly with them he got his head up, and casting his look towards the pinnace seemed to solicit assistance. Though the boat was not above five or six yards distant from him, yet from the crowded and confused state of the crew it seems it was not in their power to save him. The Indians got him under again but in deeper water; he was, however, able to get his head up once more, and being almost spent in the struggle he naturally turned to the rock, and was endeavoring to support himself by it when a savage gave him a blow with a club and he was seen alive no more. They hauled him up lifeless on the rocks, where they seemed to take a savage pleasure in using every barbarity to his dead body, snatching the daggers out of each other's hands to have the

horrid satisfaction of piercing the fallen victim of their barbarous rage.

"I need make no reflection on the great loss we suffered on this occasion, or attempt to describe what we felt. It is enough to say that no man was ever more beloved or admired; and it is truly painful to reflect that he seems to have fallen a sacrifice merely for want of being properly supported; a fate singularly to be lamented as having fallen to his lot, who had ever been conspicuous for his care of those under his command, and who seemed to the last to pay as much attention to their preservation as to that of his own life.

"If anything could have added to the shame and indignation universally felt on this occasion, it was to find that his remains had been deserted and left exposed on the beach, although they might have been brought off. It appears from the information of four or five midshipmen, who arrived on the spot at the conclusion of the fatal business, that the beach was then almost entirely deserted by the Indians, who at length had given way to the fire of the boats, and dispersed through the towns, so that there seemed no great obstacle to prevent the recovery of Captain Cook's body; but the lieutenant returned on board without making the attempt. It is unnecessary to dwell longer on this painful subject, and to relate the complaints and censures that fell on the conduct of the lieutenant. It will be sufficient to observe that they were so loud as to oblige Captain Clerke publicly to notice them, and to take the depositions of his accusers down in writing. The captain's bad state of health and approaching dissolution, it is supposed, induced him to destroy these papers a short time before his death.

"It is a painful task to be obliged to notice circumstances which seem to reflect upon the character of any man. A strict regard to truth, however, compelled me to the insertion of these facts, which I have offered merely as facts without presuming to connect with them any comment of my own, esteeming it a part of a faithful historian 'to extenuate nothing, nor set down aught in malice.'

"The fatal accident happened at eight o'clock in the morning, about an hour after Captain Cook landed. It did not seem that the king or his sons were witnesses to it; but it is supposed that they withdrew in the midst of the tumult. The principal actors were the other chiefs, many of them the

king's relations and attendants; the man who stabbed him with the dagger was called Nooah. I happened to be the only one who recollected his person, from having on a former occasion mentioned his name in a journal I kept. I was induced to take particular notice of him, more from his personal appearance than any other consideration, though he was of high rank, and a near relation of the king; he was stout and tall, with a fierce look and demeanor, and one who united in his figure the two qualities of strength and agility, in a greater degree, than ever I remembered to have seen before in any other man. His age might be about thirty, and by the white scurf on his skin and his fore eyes he appeared to be a hard drinker of Kava. He was a constant companion of the king, with whom I first saw him, when he paid a visit to Captain Clerke. The chief who first struck Captain Cook with the club was called Karimano, craha, but I did not know him by his name. These circumstances I learnt of honest Kaireekea, the priest; who added that they were both held in great esteem on account of that action; neither of them came near us afterwards. When the boats left the shore the Indians carried away the dead body of Captain Cook and those of the marines to the rising ground at the back of the town, where we could plainly see them with our glasses from the ships.

"This most melancholy accident appears to have been altogether unexpected and unforeseen, as well on the part of the natives as ourselves. I never saw sufficient reason to induce me to believe that there was anything of design or a pre-concerted plan on their side, or that they purposely sought to quarrel with us; thieving, which gave rise to the whole, they were equally guilty of in our first and second visits. It was the cause of every misunderstanding that happened between us; their petty thefts were generally overlooked, but sometimes slightly punished; the boat, which they at last ventured to take away, was an object of no small magnitude to people in our situation, who could not possibly replace her, and therefore not slightly to be given up. We had no other chance of recovering her, but by getting the person of the king into our possession; on our attempting to do that the natives became alarmed for his safety, and naturally opposed those whom they deemed their enemies. In the sudden conflict that ensued we had the unspeakable misfortune of losing

our excellent commander, in the manner already related. It is in this light the affair has always appeared to me as entirely accidental, and not in the least owing to any previous offence received, or jealousy of our second visit entertained by the natives.

"Pareah seems to have been the principal instrument in bringing about this fatal disaster. We learn afterwards that it was he who had employed some people to steal the boat; the king did not seem to be privy to it, or even apprized of what had happened till Captain Cook landed.

"It was generally remarked that at first the Indians showed great resolution in facing our fire-arms, but it was entirely owing to ignorance of their effect. They thought that their thick mats would defend them from a ball as well as from a stone; but being soon convinced of their error, yet still at a loss to account how such execution was done among them, they had recourse to a stratagem which, though it answered no other purpose, served to show their ingenuity and quickness of invention. Observing the flashes of the muskets they naturally concluded that water would counteract their effect, and therefore very sagaciously dipped their mats, or armor, in the sea, just as they came on to face our people; but finding this last resource to fail them they soon dispersed and left the beach entirely clear. It was an object they never neglected, even at the greatest hazard, to carry off their slain; a custom probably owing to the barbarity with which they treat the dead body of an enemy and the trophies they make of his bones."

In consequence of this barbarity of disposition the whole remains of Captain Cook could not be recovered. For, though every exertion was made for that purpose, though negotiations and threatenings were alternately employed, little more than the principal part of his bones (and that with great difficulty) could be procured. By the possession of them they were enabled to perform the last offices to their eminent and unfortunate commander. The bones, having been put into a coffin and the service being read over them, were committed to the deep on the 21st with the usual military honors. What were the feelings of the companies of both the ships on this occasion must be left to the world to conceive, for those who were present know that it is not in the power of any pen to express them.

A promotion of officers followed the decease of Captain Cook. Captain Clerke having succeeded of course to the command of the expedition removed on board the *Resolution*. By him Lieutenant Gore was appointed captain of the *Discovery*.

The war of England against the American colonies having broken out in the meantime, Dr. Benjamin Franklin, then ambassador at Paris from the United States of America, issued the following requisition :

"To all captains and commanders of armed ships, acting by commission from the Congress of the United States of America, now in war with Great Britain.

"GENTLEMEN :—A ship having been fitted out from England before the commencement of this war to make discoveries of new countries in unknown seas, under the conduct of that most celebrated navigator and discoverer Captain Cook ; an undertaking truly laudable in itself, as the increase of geographical knowledge facilitates the communication between distant nations in the exchange of useful products and manufactures, and the extension of arts, whereby the common enjoyments of human life are multiplied and augmented, and science of other kinds increased to the benefit of mankind in general. This is therefore most earnestly to recommend to every one of you that in case the said ship, which is now expected to be soon in the European seas on her return, should happen to fall into your hands, you would not consider her as an enemy, nor suffer any plunder to be made of the effects contained in her, nor obstruct her immediate return to England by detaining her, or sending her into any other part of Europe, or to America, but that you would treat the said Captain Cook and his people with all civility and kindness, affording them, as common friends to mankind, all the assistance in your power which they may happen to stand in need of. In so doing you will not only gratify the generosity of your own dispositions, but there is no doubt of your obtaining the approbation of the Congress and your other American owners. I have the honor to be, gentlemen, your most obedient, humble servant,

"B. FRANKLIN,

"Minister Plenipotentiary from the Congress of the United States at the Court of France.

"At Passy, near Paris, this 10th day of March, 1779."

After the death of Captain Cook Captain Clerke further explored the Sandwich Islands, and large additions of whatever relates to the knowledge of their productions and inhabitants obtained. Kamtschatka was visited, and a very friendly intercourse maintained with the Russian officers of that country. The navigators experienced the most generous and hospitable treatment from Major Behm in particular, the commander of the garrison at Bolcharetsk. They proceeded to the north in pursuit of the grand object of the expedition. Having passed through Behring Strait, and attained to something more than sixty-nine degrees and a half of northern latitude, they found it absolutely impossible to penetrate through the ice, either on the side of America or on the side of Asia. Every hope being excluded of accomplishing this way a passage into the Atlantic ocean, Captain Clerke was obliged to come to the determination of sailing back to the southward. On the 22d of August, 1779, being less than a month after this determination, the captain died of consumption. Captain Gore succeeded to the command of the *Discovery*. A second visit was paid to Kamtschatka, by which a further acquaintance was gained with that part of the world; and no small accession of information was acquired with respect to geographical science in general. They pursued their course by the coasts of Japan and China; they made some stay at Canton; thence they proceeded to the Cape of Good Hope. They came to an anchor at Stromness on the 22d of May, 1780. Both ships arrived safe at the Nore on the 4th of October after an absence of four years, two months, and twenty-two days. During the whole of the undertaking the *Resolution* lost only five men by sickness, three of whom were in a precarious state of health at their departure from England, while the *Discovery* did not lose a single man.

"The constitution of Captain Cook's body was robust, insured to labor, and capable of undergoing the severest hardships. His stomach bore without difficulty the coarsest and most ungrateful food: great was the indifference with which he submitted to every kind of self-denial. The qualities of his mind were of the same hardy, vigorous kind with those of his body. His understanding was strong and perspicacious. His judgment, in whatever related to the services he was engaged in, quick and sure. His designs were bold and manly; and both in the conception and in the mode of execution

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bore evident marks of a great original genius. His courage was cool and determined, and accompanied with an admirable presence of mind in the moment of danger. His temper might perhaps have been justly blamed as subject to hasty-ness and passion, had not these been disarmed by a disposition the most benevolent and humane.

"Such were the outlines of Captain Cook's character; but its most distinguishing feature was that unremitting perseverance in the pursuit of his object, which was not only superior to the opposition of dangers and the pressure of hardships, but even exempt from the want of ordinary relaxation. During the long and tedious voyages in which he was engaged his eagerness and activity were never in the least abated. No incidental temptation could detain him for a moment; even those intervals of recreation, which sometimes unavoidably occurred, and were looked for by us with a longing, that persons who have experienced the fatigues of service will readily excuse, were submitted to by him with a certain impatience, whenever they could not be employed in making a further provision for the more effectual prosecution of his designs.

"The character of Captain Cook," says Mr. Samwell, "will be best exemplified by the services he has performed, which are universally known, and have ranked his name above that of any navigator of ancient or of modern times. Nature had endowed him with a mind vigorous and comprehensive, which in his riper years he had cultivated with care and industry. His general knowledge was extensive and various: in that of his own profession he was unequalled. With a clear judgment, strong masculine sense, and the most determined resolution; with a genius peculiarly turned for enterprise, he pursued his object with unshaken perseverance: vigilant and active in an eminent degree; cool and intrepid among dangers; patient and firm under difficulties and distress; fertile in expedients; great and original in all his designs; active and resolved in carrying them into execution. These qualities rendered him the animating spirit of the expedition: in every situation he stood unrivalled and alone; on him all eyes were turned; he was our leading star, which, at its setting, left us involved in darkness and despair.

"His constitution was strong, his mode of living temperate. He was a modest man, and rather bashful; of an agreeable

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lively conversation, sensible and intelligent. In his temper he was somewhat hasty, but of a disposition the most friendly, benevolent, and humane. His person was above six feet high, and though a good-looking man, he was plain both in address and appearance. His head was small; his hair, which was a dark brown, he wore tied behind. His face was full of expression; his nose exceedingly well shaped; his eyes, which were small and of a brown cast, were quick and piercing; his eye-brows prominent, which gave his countenance altogether an air of austerity.

"He was beloved by his people, who looked up to him as to a father, and obeyed his commands with alacrity. The confidence we placed in him was unremitting; our admiration of his great talents unbounded; our esteem for his good qualities affectionate and sincere.

"He was remarkably distinguished for the activity of his mind: it was that which enabled him to pay an unwearied attention to every object of the service. The strict economy he observed in the expenditure of the ship's stores, and the unremitting care he employed for the preservation of the health of his people, were the causes that enabled him to prosecute discoveries in remote parts of the globe, for such a length of time as had been deemed impracticable by former navigators. The method he discovered for preserving the health of seamen in long voyages, will transmit his name to posterity as the friend and benefactor of mankind; the success which attended it, afforded this truly great man more satisfaction than the distinguished fame that attended his discoveries.

"England has been unanimous in her tribute of applause to his virtues, and all Europe has borne testimony to his merit. There is hardly a corner of the earth, however remote and savage, that will not long remember his benevolence and humanity. The grateful Indian, in time to come, pointing to the herds grazing his fertile plains, will relate to his children how the first stock of them was introduced into the country; and the name of Cook will be remembered among those benign spirits, whom they worship as the source of every good, and the fountain of every blessing."

CHAPTER VI.

THE UNITED STATES ANTARCTIC EXPLORING EXPEDITION UNDER THE COMMAND OF LIEUTENANT CHARLES WILKES, U. S. N.

Instructions of the Navy Department to Lieutenant Wilkes—Departure from the United States—Arrival at Funchal, on the Isle of Madeira—The Squadron Sails from Madeira—Arrival at St. Jago—Porto Praya—Arrival at Rio Janeiro—The City of Rio Janeiro—Passing Cape Horn—Anchoring in Orange Harbor—Preparations for a Short Cruise to the Antarctic Sea.

IN the year 1838 the government of the United States of North America sent out an exploring expedition under the command of Lieutenant Charles Wilkes of the United States Navy, who received the following instructions:

“NAVY DEPARTMENT, *August 11th*, 1838.

“SIR:—The Congress of the United States, having in view the important interests of our commerce embarked in the whale-fisheries, and other adventures in the great Southern Ocean, by an act of the 18th of May, 1836, authorized an expedition to be fitted out for the purpose of exploring and surveying that sea, as well to determine the existence of all doubtful islands and shoals, as to discover and accurately fix the position of those which lie in or near the track of our vessels in that quarter, and may have escaped the observation of scientific navigators. Liberal appropriations have been made for the attainment of these objects, and the President, reposing great confidence in your courage, capacity, and zeal, has appointed you to the command of the expedition, requiring you to proceed to the performance of the duties of that station with the vessels placed under your orders, consisting of the sloops of war Vincennes and Peacock, the ship Relief, the brig Porpoise, and tenders Sea-Gull and Flying-Fish.

“As soon as these vessels are in every respect ready, you will accordingly take your departure from Norfolk, and shape your course to Rio Janeiro, crossing the line between longitude 18° and 22° W., and keeping within those meridians to

about latitude 10° S., with a view to determine the existence of certain *vigias* or shoals laid down in the charts as doubtful, and whose position, should they be found to exist, it is deemed useful to the interests of our commerce to ascertain.

"At Rio Janeiro you will replenish your supplies, taking special care to furnish yourself with a sufficiency of all those articles which are considered the best preventives and remedies for the scurvy. You will determine the longitude of that place, as well as of Cape Frio; after which, you will either detach a vessel, or proceed with your whole squadron, to make a particular examination of Rio Negro, which falls into the South Atlantic about latitude 41° S., with a view to ascertain its resources and facilities for trade.

"Having completed this survey, you will proceed to a safe port or ports in Terra del Fuego, where the members of the scientific corps may have favorable opportunities of prosecuting their researches. Leaving the larger vessels securely moored, and the officers and crews occupied in their respective duties, you will proceed with the brig Porpoise, and the tenders, to explore the southern Antarctic, to the southward of Powell's Group, and between it and Sandwich Land, following the track of Weddell as closely as practicable, and endeavoring to reach a high southern latitude; taking care, however, not to be obliged to pass the winter there, and to rejoin the other vessels between the middle of February and beginning of March. The attention of the officers left at Terra del Fuego, will, in the mean time, be specially directed to making such accurate and particular examinations and surveys of the bays, ports, inlets, and sounds, in that region, as may verify or extend those of Captain King, and be serviceable in future to vessels engaged in the whale-fisheries, in their outward and homeward-bound passages.

"You will then, on rejoining the vessels at Terra del Fuego, with all your squadron, stretch towards the southward and westward as far as the Ne Plus Ultra of Cook, or longitude 105° W., and return northward to Valparaiso, where a store-ship will meet you in the month of March, 1839. Proceeding once more from that port, you will direct your course to the Navigator's Group, keeping to the southward of the place of departure, in order to verify, if possible, the existence of certain islands and shoals, laid down in the charts as doubtful, and if they exist, to determine their precise position, as

well as that of all others which may be discovered in this unfrequented track. When you arrive in those latitudes where discoveries may be reasonably anticipated, you will so dispose your vessels as that they shall sweep the broadest expanse of the ocean that may be practicable, without danger of parting company, lying-to at night in order to avoid the chance of passing any small island or shoal without detection.

"It is presumed you will reach the Navigator's Group some time in June, 1839. You will survey this group and its harbors, with all due care and attention. If time will permit, it will be well to visit the Society Islands, and examine Eimeo, which, it is stated, possesses a convenient harbor.

"From the Navigator's Group you will proceed to the Feejee Islands, which you will examine with particular attention, with a view to the selection of a safe harbor, easy of access, and in every respect adapted to the reception of vessels of the United States engaged in the whale-fishery, and the general commerce of these seas; it being the intention of the government to keep one of the squadron of the Pacific cruising near these islands in future.

"After selecting the island and harbor best adapted to the purposes in view, you will use your endeavors to make such arrangements as will insure a supply of fruits, vegetables, and fresh provisions, to vessels visiting it hereafter, teaching the natives the modes of cultivation, and encouraging them to raise hogs in greater abundance.

"These objects will, it is presumed, occupy you until the latter end of October; and when attained as far as may be possible, you will proceed to the port of Sydney, where adequate supplies may be obtained. From thence you will make a second attempt to penetrate within the Antarctic region, south of Van Diemen's Land, and as far west as longitude 45° E., or to Enderby's Land, making your rendezvous on your return at Kerguelen's Land, or the Isle of Desolation, as it is now usually denominated, and where you will probably arrive by the latter end of March, 1840.

"From the Isle of Desolation you will proceed to the Sandwich Islands, by such route as you may judge best, from the information you may acquire from such sources as fall in your way.

"A store-ship from the United States will meet you there, with a supply of provisions, in the month of April, 1840.

"Thence you will direct your course to the Northwest Coast of America, making such surveys and examinations, first of the territory of the United States on the sea-board, and of the Columbia river, and afterwards along the coast of California, with special reference to the Bay of San Francisco, as you can accomplish by the month of October following your arrival.

"You will then proceed to the coast of Japan, taking in your route as many doubtful islands as possible; and you have permission to pass through the Straits of Sangar into the Sea of Japan, where you may spend as much time as is compatible with your arrival at the proper season in the Sea of Sooloo or Mindoro.

"Of this sea you will make a particular examination, with a view to ascertain whether there is any safe route through it, which will shorten the passage of our vessels to and from China.

"It is enjoined on you to pay very particular attention to this object, in order that you may be enabled to furnish sailing instructions to navigators. It may be also advisable to ascertain the disposition of the inhabitants of the islands of this archipelago for commerce, their productions and resources.

"Having completed this survey, you will proceed to the Straits of Sunda, pass through the Straits of Billiton, which you will examine, and thence to the port of Singapore, where it is probable you may arrive about the beginning of April, 1841, and where you will meet a store-ship from the United States.

"Having completed this service, it is presumed the objects of your enterprise will be accomplished, and you will, accordingly, after receiving your supplies at Singapore, return to the United States by the Cape of Good Hope, taking such a course as may be most likely to further the great purposes of the expedition.

"During your stay in the southern latitudes, should the dysentery or any other fatal epidemic make its appearance among your crews, you have leave to proceed to the northward, until the disease shall either disappear, or be so mitigated as to admit of the resumption of your surveys.

"The department does not feel the necessity of giving any special directions for preserving the health of those

under your command, confiding in your own experience, the care and precautions of the able surgeons with whom you are provided, and in the conviction you must feel, that on the health of your crews must depend the success of the enterprise.

"In the prosecution of these long and devious voyages, you will necessarily be placed in situations which cannot be anticipated, and in which, sometimes your own judgment and discretion, at others, necessity must be your guide. Among savage nations, unacquainted with, or possessing but vague ideas of the rights of property, the most common cause of collision with civilized visitors is the offence and the punishment of theft. You will therefore adopt every possible precaution against this practice, and in the recovery of the stolen property, as well as in punishing the offender, use all due moderation and forbearance.

"You will permit no trade to be carried on by the squadron with the countries you may visit, either civilized or savage, except for necessities or curiosities, and that under express regulations established by yourself, in which the rights of the natives must be scrupulously respected and carefully guarded.

"You will neither interfere, nor permit any wanton interference with the customs, habits, manners, or prejudices of the natives of such countries or islands as you may visit; nor take part in their disputes, except as a mediator; nor commit any act of hostility, unless in self-defence, or to protect or secure the property of those under your command, or whom circumstances may have placed within reach of your protection.

"You will carefully inculcate on all the officers and men under your command, that courtesy and kindness towards the natives, which is understood and felt by all classes of mankind; to display neither arrogance nor contempt, and to appeal to their good-will rather than their fears, until it shall become apparent that they can only be restrained from violence by fear or force.

"You will, on all occasions, avoid risking the officers and men unnecessarily on shore at the mercy of the natives. Treachery is one of the invariable characteristics of savages and barbarians; and very many of the fatal disasters which have befallen preceding navigators have arisen from too

great a reliance on savage professions of friendship, or overweening confidence in themselves.

"Much of the character of our future intercourse with the natives of the lands you may visit will depend on the impressions made on their minds by their first intercourse with your vessels.

"It is the nature of the savage long to remember benefits, and never to forget injuries; and you will use your best endeavors, wherever you may go, to leave behind a favorable impression of your country and countrymen. The expedition is not for conquest, but discovery. Its objects are all peaceful; they are to extend the empire of commerce and science; to diminish the hazards of the ocean, and point out to future navigators a course by which they may avoid dangers and find safety.

"An expedition so constituted, and for such purposes, armed for defence, not conquest, and engaged in pursuits in which all enlightened nations are equally interested, has a right to expect the good-will and good offices of the whole civilized world. Should our country, therefore, be unhappily involved in war during your absence, you will refrain from all acts of hostility whatever, as it is confidently believed none will be committed against you. So far from this being the case, it is not to be doubted that even hostile nations will respect your purposes, and afford every facility to their accomplishment.

"Finally, you will recollect, that though you may frequently be carried beyond the sphere of social life, and the restraints of law, yet that the obligations of justice and humanity are always and everywhere equally imperative in our intercourse with men, and most especially savages; that we seek them, not they us; and that if we expect to derive advantages from the intercourse, we should endeavor to confer benefits in return.

"Although the primary object of the expedition is the promotion of the great interests of commerce and navigation, yet you will take all occasions, not incompatible with the great purposes of your undertaking, to extend the bounds of science, and promote the acquisition of knowledge. For the more successful attainment of these, a corps of scientific gentlemen, consisting of the following persons, will accompany the expedition, and are placed under your direction: Mr. Hale, phi-

lologist; Mr. Pickering, Mr. Peale, naturalists; Mr. Couthouy, conchologist; Mr. Dana, mineralogist; Mr. Rich, botanist; Mr. Drayton, Mr. Agate, draughtsmen; Mr. Brackenridge, horticulturist.

"The hydrography and geography of the various seas and countries you may visit in the route pointed out to you in the preceding instructions, will occupy your especial attention; and all the researches connected with them, as well as with astronomy, terrestrial magnetism, and meteorology, are confided exclusively to the officers of the navy, on whose zeal and talents the department confidently relies for such results as will enable future navigators to pass over the track traversed by your vessels, without fear and without danger.

"No special directions are thought necessary in regard to the mode of conducting the scientific researches and experiments which you are enjoined to prosecute, nor is it intended to limit the members of the corps each to his own particular service. All are expected to co-operate harmoniously in those kindred pursuits, whose equal dignity and usefulness should insure equal ardor and industry in extending their bounds and verifying their principles.

"As guides to yourself and to the scientific corps, the department would, however, direct your particular attention to the learned and comprehensive reports of a committee of the American Philosophical Society of Philadelphia, the report of a committee of the East India Marine Society, of Salem, Massachusetts; and to a communication from the Naval Lyceum of New York, which accompany, and are to be regarded as forming a part of these instructions, so far as they may accord with the primary objects of the expedition and its present organization. You will, therefore, allow the gentlemen of the scientific corps the free perusal of these valuable documents, and permit them to copy such portions as they may think proper.

"The Russian Vice-Admiral Krusenstern has transmitted to the department memorandums relating to the objects of this expedition, together with the most approved charts of his atlas of the Pacific Ocean, with explanations, in three volumes. These are also confided to your care; and it is not doubted that the friendly contributions of this distinguished navigator will essentially contribute to the success of an enterprise in which he takes so deep an interest.

"You will prohibit all those under your command from furnishing any persons not belonging to the expedition with copies of any journal, charts, plan, memorandum, specimen, drawing, painting, or information of any kind, which has reference to the objects or proceedings of the expedition.

"It being considered highly important that no journal of these voyages, either partial or complete, should be published without the authority and under the supervision of the government of the United States, at whose expense this expedition is undertaken, you will, before you reach the waters of the United States, require from every person under your command the surrender of all journals, memorandums, remarks, writings, drawings, sketches, and paintings, as well as all specimens of every kind, collected or prepared during your absence from the United States.

"After causing correct inventories of these to be made and signed by two commissioned officers, and by the parties by whom they were collected or prepared, you will cause them to be carefully sealed by the said officers and reserved for such disposition as the department may direct.

"You will adopt the most effectual measures to prepare and preserve all specimens of natural history that may be collected, and should any opportunities occur for sending home by a vessel of war of the United States, copies of information, or duplicates of specimens, or any other material you may deem it important to preserve from the reach of future accident, you will avail yourself of the occasion, forwarding as frequently as may be done with safety, details of your voyage and its most material events, at the same time strictly prohibiting all communications except to this department, from any person attached to the expedition, referring to discoveries, or any circumstances connected with the progress of your enterprise.

"It is believed that the officers under your command require no special advice or direction from this department. Bearing in mind, as they no doubt will, that the undertaking which they are about assisting to accomplish, is one that necessarily attracts the attention of the civilized world, and that the honor and interests of their country are equally involved in its results, it is not for a moment doubted that on this occasion they will so conduct themselves, as to add to the reputation our navy has so justly acquired at home and abroad.

"With the best wishes for the success of the expedition, and the safe return of yourself and your companions,

"I am, very respectfully,

(Signed)

"J. K. PAULDING.

"To LIEUTENANT CHARLES WILKES,

"Commanding the Exploring and Surveying Expedition, etc."

Together with these instructions Lieutenant Wilkes received orders to put to sea the moment he was ready. His squadron was composed of the following vessels: the Vincennes, a sloop of war of 780 tons, originally single-decked, but in consequence of the intended cruise a light deck was put on her for the protection of the men and to afford more room. The accommodations thus became those of a small frigate.

The Peacock, a sloop of war of 650 tons, originally built with a deck like that of the Vincennes. She had made two cruises previous to her sailing in 1838.

The Porpoise, a gun-brig of two-and-thirty tons; the tender Sea-Gull of 110 tons; the tender Flying-Fish of 96 tons; and the Relief, a new vessel, originally intended as a store-ship for the navy. She was built for carrying, and her slow rate of sailing made her ill-adapted for the cruise.

Orders were given to rendezvous, in case of separation, at Madeira. It was soon found, in the trial of the sailing qualities of the vessels, that the Relief was unsuited to act with the rest without great detention, and after four days Lieutenant Wilkes determined to part company with her, giving her orders to proceed to the Cape de Verdes.

On the 25th of August the winds became favorable, and the squadron was enabled to lay its course towards Madeira. They continued to keep the direction of the Gulf Stream towards the Western Islands. They felt its influence until they reached the longitude of 48° W., and found it to set for the last few days to the northward of east. The winds had been light and the sea smooth, indicating no other impulse than the flow of the stream. The temperature gradually decreased from 83° to 75°.

On the night of the 26th the ships parted company with the Peacock and Flying-Fish in a squall, and did not again meet them until they reached Madeira. The 5th of September, being near the reported shoal of St. Anne, he determined to pass over its position.

On the 16th Lieutenant Wilkes made the island of Madeira, and having a strong westerly wind he determined to pass to Funchal, on its southern side. This may be done at this season, but vessels bound to that port usually prefer going round the eastern point of the island. When off the western point of Madeira he experienced a very long, heavy swell, which gave him an opportunity of trying the velocity of the waves by noting the time the same wave was passing between the vessels.

Before sunset he cast anchor in company with the Porpoise and Sea-Gull, and were the next morning joined by the Peacock and Flying-Fish.

Shortly after coming to anchor the Vincennes was boarded by the health officer, with the captain of the port, who gave permission to land.

The landing at Funchal is on a stony beach, and is accompanied with some little difficulty, partly on account of the surf, but more from the noise, confusion, and uproar made by the native boatmen in their efforts to drag their boats up on the beach. This operation they however understand, and are well accustomed to, and those who desire to land dry will be wise to employ them.

The habitations of the lower order are miserable huts. They are composed of walls of stone, about five or six feet high, with a roof rising on all sides to a central pole; are thatched with straw or broom, and contain only one room. The only aperture for light and smoke is the door. There is but little necessity for chimneys, as fire is seldom required. In the northern part of the island some of the peasants make their habitation in caves or excavations on the hillside.

In the town of Funchal there are many elegant establishments, and much luxury among the higher classes, but the poorer classes are lodged miserably. The houses are generally of one story, of which the exterior is well kept, being neatly whitewashed; but the interior is anything but comfortable. They have but one entrance. The floors are paved with round stone, and the walls are of rough stone, presenting no better an appearance than our wood-cellars. The furniture is scanty and of the coarsest kind.

Travelling is performed in sedan-chairs. This mode is always considered the safest for ladies, particularly in crossing the mountains. Horses and mules are seldom used. On

leaving Funchal for the country it is one continued ascent between high stone walls, these forming abutments to the terraces, which are covered with vines, and afford protection from the sun. After reaching the hills one enjoys a delightful view of the beautiful gardens. The roadsides are lined throughout with flowers (to us, those of the green-house), among them Fuchsias, digitalis, rose geraniums, *Punica granata*, *Rosa indica coccinea*, *Hydrangea hortensis*, mixed with box-trees, myrtles, etc.

The valleys are covered with the Belladonna lily, and the mountain-passes cannot be compared to anything more appropriate than to a rich flower-garden left to grow wild. Added to this, a climate which resembles our finest spring weather.

Such of the peasantry as do not gain a subsistence in the vineyards, have usually a small patch of ground which they cultivate, raising grain, corn, potatoes, and the taro (*Arum esculentum*), in quantities barely sufficient to eke out a scanty living. The cultivation is commonly performed by hand, although a plow of very simple construction is sometimes used. Many of the peasantry are employed as carriers, and one is much struck by their numbers when entering Funchal early in the morning, with sheep-skins filled with wine on their shoulders, that look at a distance more like the live animal than a filled skin.

The south side of Madeira, although not the most fertile, produces the finest wines. Every point which can be cultivated successfully is attended to, and earth is brought to increase the soil from other parts. The kinds of grapes are various, and the wines manufactured are numerous. The common Madeira is obtained from a mixture of Bual, Verdelho and Negro Molle grapes; the Malmsey and Sercial from grapes of the same name. There is a great difference in the spots and peculiar exposure where the vine grows; and different kinds of wine are produced, according to the state of maturity to which the grape is allowed to arrive at before being gathered. After being expressed, it is put into casks, undergoes the process of fermentation, is clarified with gypsum or isinglass, and a small portion of brandy is added, two or three gallons to the pipe.

The deportment of the lower classes is a mixture of politeness and servility. The language spoken in Madeira is

Portuguese, but with a rapid utterance, or rather, clipping or abbreviating of their words and expressions.

The ignorance of the common people seems great. Few can read, and still fewer write. It is said they are acquainted with no more than three coins, all of which are Spanish, namely, dollars, pistareens, and bits, and that many kinds of Portuguese coins current in Lisbon will not pass in Madeira. The want of a small description of money is much felt.

On the 25th of September the squadron sailed from Madeira, and stood to the southward, intending to pass over the localities where shoals were supposed to exist.

After passing the Canary Islands they experienced a current setting northeast by east, of about one-fourth of a mile an hour until they reached the latitude of Bonavista, one of the Cape de Verde Islands.

On the 29th of September they passed into discolored water, as green in appearance as that of fifty fathoms' depth. On entering it the thermometer fell one and a half to two degrees. The distance run in it was about four hundred and fifty miles. Repeated casts of the deep-sea lead were had in from two to three hundred fathoms, but no bottom found. The water was particularly examined for animalculæ, but none were detected. On leaving it a rise of temperature took place of two degrees; and much phosphorescence was seen when they had passed out of it.

On the morning of the 7th they anchored in Porto Praya bay. The island of St. Jago presents a very different appearance from Madeira, particularly the southeastern portion of it, though its formation is known to be similar. There are many high peaks and mountains in its centre, which afford a fine background for the barren and uninteresting coast scenery.

The time of arrival was just after the rainy season; the island consequently presented a more verdant appearance than it does at other seasons of the year.

The town of Porto Praya is prettily situated on an elevated piece of table-land, and looked well from the anchorage.

The bay is an open one, but is not exposed to the prevailing winds. There is generally a swell setting in, which makes the landing unpleasant and difficult. The only landing-place is a small rock, some distance from the town, and under a high bank, on which there is, or rather was, a fortification, for

it is now entirely gone to decay. It commands the bay, and is situated about two hundred feet above the sea. The horizontal stratification of the red and yellow-colored sandstone shows most conspicuously in this cliff, and forms one of the most remarkable objects on this part of the island. It is of tertiary formation, and contains many fossils.

On landing a stranger is immediately surrounded by numbers of the inhabitants with fruit, vegetables, chickens, turkeys and monkeys, all pressing him with bargains, and willing to take anything for the purpose of obliging their customers. Many of them continue to follow until they meet with some new customer.

The soil, rocks, and everything around on the surface, show unequivocal marks of volcanic origin. The rock above the tertiary formation is a thick bed of cellular lava, with fragments of the same strewn in every direction over it. A thin and poor soil gives but little sustenance to a light herbage. Goats and asses are found in great numbers grazing upon it.

The walk from the landing to the town is very fatiguing, and the road deep with sand. The first view of the town on entering it is anything but striking, and all the ideas formed in its favor are soon dispelled. The houses are whitewashed, and in general appearance resemble those inhabited by the lower orders in Madeira, but they are much inferior even to them. The northeast part of the town is composed of rough stone houses, covered with palm leaves. The streets are wide, and in the centre is a large public square, the middle of which is occupied by a small wooden monument. A chapel, jail and barracks constitute the principal public buildings. The fort, which flanks the town, is almost entirely in decay. This is the case with almost everything we saw here; the place is, indeed, little better than an African town. The houses are of stone, one story high, partly thatched, and others tiled. Their interior presents only a few articles of absolute necessity. Of comfort and cleanliness they have no idea. The houses and streets are filthy in the extreme; and in both of them pigs, fowls and monkeys appear to claim, and really possess, equal rights with the occupants and owner.

The population is made up of an intermixture of descendants from the Portuguese, natives and negroes from the adja-

cent coast. The negro race seems to predominate, woolly hair, flat noses and thick lips being most frequently met with.

The language spoken is a jargon formed by a mixture of the Portuguese and negro dialects. Most of the blacks speak their native tongue. Hale, our philologist, obtained here a vocabulary of the Mandingo language, and found it to agree with that given by Mungo Park.

On the afternoon of the 23d of November the squadron took a light wind from the southeast, and with all sail set stood in for the magnificent harbor of Rio Janeiro. Their attention was drawn first to the high, fantastic and abrupt peaks of Gavia, the Sugar Loaf and Corcovado on the left; whilst on the right they had the bold point of Santa Cruz; then before them the city of San Salvador and the towns of San Domingo, with Praya Grande opposite, and the islands and fleet that lay between them decking this beautiful expanse of water. These objects, with the pinnacles of the Organ Mountains for a background, form such a scene that it would be difficult to point out in what manner it could be improved. The life and stir created by the number of vessels, boats and steamers of various forms and of all sizes passing to and fro give great animation to the whole.

The mountains present a very peculiar appearance. Their tops and sides have a rounded or worn surface, destitute of verdure, with the exception of here and there a yellowish patch, produced by the *Tillandsias*, which in places covers the rocks. The abruptness of the Sugar Loaf Mountain, and those immediately behind Santa Cruz, strikes the spectator very forcibly.

The shipping do not form, as in other places, a dense forest of masts. There being no wharves they are obliged to lie at anchor, exhibiting their proportions and symmetry to great advantage. They are usually seen grouped together, with their different flags flying, forming a picture that a painter would delight in.

There is a feeling of security on entering the harbor of Rio that one seldom experiences elsewhere. The mountains seem as it were to afford complete protection from the winds and ocean. They anchored near Enxados or Hospital Island, and found the Peacock had arrived here three days before them, and that she was proceeding with her repairs rapidly.

The vessels being altogether unfit for the southern cruise, it became necessary to effect the requisite repairs as speedily as possible.

The instruments and stores were allowed to be landed free of inspection, and every assistance they could desire was afforded by the government and its officers.

Every one, on first landing at Rio Janeiro or San Salvador, will be struck with the indiscriminate mingling of all classes in every place, all appearing on terms of the utmost equality; officers, soldiers and priests, both black and white, mixing and performing their respective duties, without regard to color or appearance. The only distinction seems to be that of freedom and slavery. There are many wealthy free blacks, highly respectable, who amalgamate with the white families, and are apparently received on a footing of perfect equality. An air of independence is creeping in even among the working classes. Any little service that is required, and for which they are well paid, they appear to consider as a favor done you. The mechanical arts are at least half a century behind those of other countries. The churches, which are numerous, are falling into decay, and, to crown all, the steps of the churches are made a market-place for the sale of sheep, pigeons, fruit, etc.

You can see Rio Janeiro under its most favorable aspect during the holidays, when the church has put on all her finery and decorations, and every one, slave as well as master, seems intent upon enjoying himself. The Christmas week or holidays give a respite from all labor, and various are the amusements. The churches are decked, and the services extraordinary.

The neglect of the public walks and roads shows a want of proper attention, and strikes the visitor as different from the usual order of things around a court. Rio has every advantage to make it a clean city, but the inclination appears to be wanting.

The houses of the city are strongly built of stone, cemented together with clay; this is used in consequence of the scarcity of lime, which is only obtained by burning shells fished up from the bay. The houses are plastered on the outside, and have a pretty appearance and color. The floors, beams and roofs are made of the hard wood of the country, of great size and strength, which are indeed necessary from the heavy tile

roof they have to bear. Very few of the houses have yards, cellars or gardens; consequently the dwellers are still greatly incommoded from the want of water-closets, detrimental both to health and comfort, and not only an annoyance and inconvenience to the inhabitants themselves, but shared by the stranger in passing through the streets.

The churches are richly decorated in the interior with massive gold and silver ornaments. On some of the altars of the saints it is the practice to suspend the diseased parts of the body in wax, in honor of the cure supposed to have been effected by the saints' intercession. The sight of these is truly disgusting, although they are far from being well executed.

The language generally spoken is Portuguese, though some inhabitants speak French, English and German.

The repairs on the ships of the squadron to be made at Rio were extensive, particularly those on the Peacock. Among other things the head of the mizzen-mast had to be cut off eighteen inches, in consequence of a defect in it, which it appeared had been filled up with rope-yarns and putty, and painted over at her outfit. The defects about the vessel were so glaring, that in going to the high latitudes it would have been impossible to secure the crew from great suffering and exposure. Even in the state in which the squadron was now put, they had every apprehension of the greatest disasters. The Peacock, particularly, was wholly unseaworthy with respect to such a cruise.

On the 6th of January, everything being ready, the squadron weighed anchor and dropped down the harbor.

The winds proved light and variable during their passage to Rio Negro, and they occasionally experienced a south-westerly current, of little strength. On the 18th of January, when seventy-eight miles distant from the mouth of the Rio la Plata, they passed through the discolored water of that river.

On the 25th they discovered the coast, which is a line of low sand-hills, without trees, and it exhibits little appearance of vegetation. In the evening they anchored off the bar.

The coast and the banks of the Rio Negro are composed of sand-hills of from thirty to fifty feet in height, covered with a scattered growth of grass, which prevents the sand from blowing away. These gradually rise to the height of one

hundred feet, except to the southward of the river, where the bank is perpendicular; at this height the ground stretches away in a level prairie, without a single tree to break the monotony of the scene, and affords a view as uninterrupted as the ocean.

The only verdure on the prairie is a small shrub, which, when the lower branches are trimmed off, serves a useful purpose. From an optical illusion (the effect of refraction) they appear, when thus trimmed, as large as an ordinary sized apple tree, and one is not a little surprised to find them, on a near approach, no higher than the surrounding shrubs, four or five feet. Shrubs are trimmed in this manner at distances of about half a mile from each other, and are used as guide-posts on the prairie. A similar optical effect is spoken of by travellers on the steppes of Russia.

Game is most plentiful, consisting of deer, guanacoes, and caviars, cassowaries, partridges, bustards, ducks, etc. Armadillos were common, and the ostrich was frequently seen; porcupines are also said to be found. The caviars were seen running about in single file, with a sort of halting gait.

The width of the river is less than a third of a mile; it has a rapid current, and a large body of water is carried by it to the ocean.

On the 3d of February the squadron got under way, and were glad to leave an exposed and unpleasant anchorage.

On the 13th they made Staten Land, and soon afterwards Cape St. Diego, Terra del Fuego. The land was broken, high, and desolate. The Straits of Le Maire were before them; they were just in time to take the tide, and with a fair wind they sailed rapidly through the strait, passing its whirls and eddies, now quite smooth, but in a short time to become vexed and fretted by the returning tide. The squadron glided along with all its canvas spread to the breeze, scarcely making a ripple under the bows. The day was a remarkably fine one for this climate, and the sight beautiful, notwithstanding the desolate appearance of the shores.

The coast of Terra del Fuego presents the same general character throughout, of high, broken, and rugged land, which appears of a uniform elevation of about one thousand or fifteen hundred feet, with here and there a peak or mountain covered with snow, rising to some four or five thousand feet. • The whole wears a sombre and desolate aspect. It

may be said to be iron-bound, with many high and isolated rocks, that have become detached from the land apparently by the wear of ages. Numerous unexpected indentations occur all along the coast, many of them forming harbors for small vessels, and some of them very safe ones.

In passing Cape Horn the weather was delightful. They sailed within two miles of this dreaded promontory, and could not but admire its worn and weather-beaten sides, that have so long been invested with all the terrors that can beset sailors. Here they first encountered the long swell of the Pacific, but there was scarcely a ripple on its surface. Although the landscape was covered with snow, the lowest temperature was 40° Fahrenheit.

On the 17th of February, 1839, at half-past 6 A. M., anchored in Orange Harbor. Here they found the Relief and tenders, all well.

Orange Harbor is on the western side of Nassau Bay, separated and protected from it by Burnt Island. It is nearly land-locked, and is the safest harbor on the coast. The hills on each side, after several undulations, rise into conical peaks, and the naked rock is everywhere broken into a jagged outline, with no creeping plants to soften or take off its harshness. Everything has a bleak and wintry appearance, and is in excellent keeping with the climate; yet the scenery about it is pleasing to the eye, bounded on all sides by undulating hills, which are covered with evergreen foliage. Distant mountains, some of which are capped with snow, shooting up in a variety of forms, seen beyond the extensive bays, form a fine background. From the vessels the hills look like smooth downs, and if it were not for the inclemency and fitfulness of the weather, they might be contemplated with some pleasure.

The hills are covered with dense forests of beech, birch, willow, and winter-bark. Some of the former trees are forty or fifty feet high, having all their tops bent to the northeast by the prevailing southwest winds. They are remarkably even as to height, having more the look, at a distance, of heath than of forest trees.

The whole coast has the appearance of being of recent volcanic rocks, but all investigations tended to prove the contrary.

Immediately on arrival at Orange Harbor, active preparations were made for a short cruise to the Antarctic.

Captain Hudson, with the Peacock, and the Flying-Fish, under Lieutenant Walker, as a tender, were ordered to the westward, as far as the Ne Plus Ultra of Cook. Lieutenant Wilkes went in the Porpoise, Lieutenant-Commandant Ringgold, accompanied by the Sea-Gull, Lieutenant Johnson, to pass to the south, for the purpose, if possible, of exploring the southeast side of Palmer's Land, or, should an opportunity offer, of proceeding farther south. The Relief, Lieutenant-Commandant Long, was ordered into the Straits of Magellan, through the Brecknock Passage and Cockburn's Sound, with part of the gentlemen of the scientific corps, in order to enlarge the field of operations. Mr. Peale volunteered to go south in the Peacock.

The Vincennes was safely moored in Orange Harbor, and left under the charge of Lieutenant Craven, to carry on the investigations, surveys, etc., etc. Messrs. Couthouy and Drayton, of the scientific corps, remained in the Vincennes. Lieutenant Carr was put in charge of the observatory.

The vessels were well supplied with fuel, provisions, and various antiscorbutics, for ten months. A spot for the observatory was fixed upon, and orders left for the duties to be performed during the absence of the squadron.

CHAPTER VII.

WILKES' ANTARCTIC EXPEDITION—(*Continued*).

Departure of the Antarctic Expedition from Orange Harbor—The Porpoise and Sea-Gull Separate during a Gale—Elephant Island—Expedition of the Peacock and Flying Fish—A Terrible Gale and an Aurora Australis—Turning the Vessels' Heads Northward—The Peacock Arrives at Valparaiso—The Relief in a Gale near Noir Island—Losing Her Anchors—Departure from Valparaiso—Arrival at Callao—A Jaunt into the Interior of Peru—Store-Ship Relief Ordered Home—Minerva Island—Arrival at Tahiti—The Porpoise Sails for the Samoan Group, and the Vincennes to Papieti—Ascending Mount Aorai—The Harbor of Pago-Pago—The Vincennes Sails from Tuila—A Narrow Escape—Tuvalu Tried for Murder—In the Harbor of Apia—Apolima—Sailing for New South Wales—Arrival at Sydney—Departure of the Squadron for an Antarctic Cruise—The Flying Fish and Peacock Separated from the Vincennes and Porpoise During a Gale—The Peacock Discovers a Guano Island—Is there an Antarctic Continent?—Return of the Vincennes Northward—Proceeding of the Porpoise—French Squadron Seen—Its Commander Refuses to Speak the Porpoise.

ON the 25th of February, 1839, having completed the arrangements for the southern cruise, the signal was ordered to be made for the vessels to get under way, when Lieutenant Wilkes joined the Porpoise. Very many of the crew were desirous of following him, and expressed regrets and disappointment that the Vincennes was not going south. About 7 A. M. the ships left the harbor, with a light breeze from the north, having the Sea-Gull, of which vessel Lieutenant Johnson was in charge, in company. At the mouth of the harbor Captain Hudson and the officers took their leave.

The wind continued light, with fine weather, until the afternoon. A dense bank of cumuli in the southwest foretold that they were not long to enjoy such moderate weather. About 4 P. M. a heavy squall struck the ships, which soon took them clear of the islands, on their course to the southward.

On the 26th they discovered a sail, which proved to be the whale-ship America, from New Zealand, bound to New York, and afforded them an opportunity of writing home, which they gladly availed themselves of.

After delivering their letters they bore away to the south.

east, the wind inclining to the northwest, and blowing heavy, with a light and remarkably regular sea following.

At daylight on the 1st of March they had snow in flurries, and the first ice-islands were made. They excited much curiosity, and appeared to have been a good deal worn, as though the sea had been washing over them for some time. They were of small size in comparison with those they afterwards saw, but, being unused to the sight, they thought them magnificent. At noon they made land, which proved to be Ridley's Island. It was high, broken, and rugged, with the top covered with snow. The rocks had a basaltic appearance, and many were detached from the main body of the island, with numerous high pinnacles, very much worn by the sea. The surf was too great to attempt a landing for the purpose of procuring specimens. As they closed in with the land, they lowered a boat and tried the current, which was found setting to the north-northwest, two fathoms per hour.

Later they had several ice-islands in sight, Cape Melville bearing south by east. They now had light winds from the south-southwest.

The north foreland of King George's Island was in sight, and found to be well placed on the charts. The appearance of all this land is volcanic; it is from eight hundred to one thousand feet high. The upper part is covered and the valleys filled with snow of great depth. Before night we had several other islands in sight, with many bergs and much drift-ice.

On the 2d, at daylight, they made O'Brien's and Aspland's Islands to the eastward, with many ice-islands, some of a tabular form, and from half a mile to a mile in length. Through the fog and mist they got a sight of Bridgeman's Island, and stood for it, with the intention of landing on it.

On the 3d the ships stood for Palmer's Land. The birds now had very much increased, Cape pigeons, with the gray and black petrel, and occasionally penguins, swimming about in all directions, uttering their discordant screams: they seemed astonished at encountering so unusual an object as a vessel in these frozen seas. At 6 hrs. 30 min. they made land, which Lieutenant Wilkes took to be Mount Hope, the eastern point of Palmer's Land. Later they had penetrated among the numerous icebergs, until they found it impossible to go farther. They had rarely seen a finer sight. The sea

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was literally studded with these beautiful masses, some of pure white, others showing all the shades of the opal, others emerald green, and occasionally here and there some of a deep black, forming a strong contrast to the pure white.

On the 5th of March the gale had increased. The tender *Sea-Gull* being in close company, both vessels were in imminent danger. At 3 A. M. they narrowly escaped several icebergs. At 4 A. M. it blew a very heavy gale from the south-west; the temperature of the air fell to 27°, and that of the water was 29°; the ice formed rapidly on the deck, and covered the rigging, so much as to render it difficult to work either the brig or schooner; dangers beset them in every direction, and it required all the watchfulness they were possessed of to avoid them.

From the state of the weather, the lateness of the season, and the difficulty of seeing around them, not only during the several hours of the night, but even in the day-time, the constant fogs and mist in which they had been for several hours every day enveloped, rendered their exertions abortive, and precluded the possibility of doing anything more than to attend to the sailing of the vessels. These reasons determined them to give up the endeavor to proceed farther south, feeling convinced that the season for such explorations had gone by. Lieutenant Wilkes therefore ordered the *Sea-Gull* to return to Orange Harbor, well knowing that her situation was much worse than his own; directing her to touch at Deception Island on the way, while the *Porpoise* proceeded to the northward to examine some of the other islands.

On the 7th, while making all way to the northward, the fog lifted, and high land was reported within a short distance of us. A few moments more and the *Porpoise* should have been wrecked. This proved to be Elephant Island. The sea was too high to attempt a landing. In the afternoon it cleared, and from observations found Cape Belsham, its eastern point, well placed. They passed between it and Cornwallis Island. The Seal Rocks were now also seen and observed upon. On the 16th the ship was off the Straits of Le Maire.

On the 30th they reached Orange Harbor. The *Sea-Gull* had returned safely, having, after parting company, visited, as directed, Deception Island.

Early on the 25th of February, the *Peacock*, with the tender *Flying-Fish*, got under way, and also received parting

cheers from the Vincennes and Relief. The heavy squall from the southwest induced Captain Hudson to regain the outer anchorage of Orange Harbor, and remain there during the continuance of the gale. The next morning, the weather proving more favorable, they again got under way, and stood down the bay with all sail set, and a fine breeze from the northward.

The heavy bank of cumuli that had been perceived in the west, by noon began to develop itself, and by three o'clock they were under their storm-sails. This gale lasted twenty-four hours, and during its continuance the tender Flying-Fish was lost sight of.

During the gale, from her bad and defective outfits, no vessel could be more uncomfortable than the Peacock, and, although every precaution was taken to make the ports tight, yet from their working, it was found impossible to keep them so.

They encountered, during the 17th and part of the 18th, the heaviest gale and sea they had experienced since leaving the United States. The ship was completely coated with ice, even to the gun-deck. Every spray thrown over her froze, and her bows and deck were fairly packed with it. The crew suffered much from the gun-deck being constantly wet; and it being now covered with ice, the ship was damp throughout.

On the 18th the gale continued, with a heavy sea, the winds prevailing more from the south and the south-southeast. There were many birds about the ship. Several icebergs were in sight, and at night they had a beautiful display of the aurora australis, extending from south-southwest to east. The rays were of many colors, radiating towards the zenith, and reaching an altitude of 30° . Several brilliant meteors were also observed.

On the 19th they had another display of the aurora, and it exhibited a peculiar effect. In the southern quarter there was an appearance of a dense cloud, resembling a shadow cast upon the sky, and forming an arch about 10° in altitude. Above this were seen coruscations of light, rendering all objects around the ship visible. From behind this cloud diverging rays frequently shot up to an altitude of from 25° to 45° . These appearances continued until day dawned. The night was remarkably fine, and many shooting stars were observed.

During the afternoon of this day a fog-bank was perceived in the southwestern quarter, and they were a short time afterwards completely enveloped in a fog so dense and thick that they could not see twice the length of the ship.

During the whole of the 21st they could not venture to run, in consequence of the dense fog.

On the 23d it partly cleared, and the fog having been succeeded by a snow-storm, the wind hauled to the west, with a heavy bank of clouds in that quarter. On the 24th, the wind hauling to the northward and westward, brought snow and thick weather, with some heavy squalls. Many icebergs were met with, which were fortunately avoided. Some of the icebergs were 200 feet above the surface of the water, and of a pinnacle shape.

On the 25th they obtained a meridian observation, the first for the last six days, and found themselves in the latitude of 68° S., longitude $97^{\circ} 58'$ W. Here, in the evening, to their great joy, they fell in with the tender Flying-Fish. On her near approach all hands were turned up, and gave her three hearty cheers. Lieutenant Walker reported to Captain Hudson that he had visited all the appointed rendezvous in hopes of falling in with the Peacock. On the 17th they turned towards the south for Cook's Ne Plus Ultra, and continued their way to the southward. The weather was at times very thick, the ice-islands became numerous, and they occasionally passed a little floating ice. On the 18th the ice became abundant, and floated in large masses around them. At 4 A. M. the water was much discolored, and some of the ice also having the appearance of being but lately detached from the land. They obtained a cast of the lead, but found no bottom at 100 fathoms. At eight o'clock the fog lifted, and discovered, to the amazement of all, a wall of ice from fifteen to twenty feet high, extending east and west as far as the eye could reach, and spreading out into a vast and seemingly boundless field to the south. Their latitude at this time was about $67^{\circ} 30'$ S., longitude 105° W. The weather becoming thick, they stood to the northward, and soon ran into blue water.

On the 21st, at 7 A. M., they saw the ice extending in broken ranges from south by east to northeast, and the sea extending round to the westward. At eight o'clock the water was again much discolored, and many large icebergs were around. At meridian their latitude was $68^{\circ} 41'$ S., longitude $103^{\circ} 34'$ W.,

when they again stood to the southward, running among the ice-islands with a fair wind, flattering themselves that they should before noon of the next day get farther south than Cook had. In this, however, they were disappointed; for the weather became thick, and they were in consequence obliged to heave to.

On the morning of the 23d of March their latitude was 70° S., longitude $100^{\circ} 16'$ W. The weather proved clear. In the afternoon they again stood to the southward and eastward for three hours, when they observed the appearance of land, and discovered large masses of ice and numerous icebergs. At midnight the southern horizon was beautifully illuminated with the aurora australis.

On the 24th they had a heavy fall of snow; passed many icebergs and large quantities of floating ice; got suddenly into large fields of packed and broken ice, extending as far as the eye could reach in all directions, which, with the accumulation of snow, appeared to be rapidly becoming solid. They lost no time in forcing their way out. All on board were of opinion that within a short time after they cleared it it became a firm field of ice. The latitude observed was $69^{\circ} 6'$ S., longitude $96^{\circ} 50'$ W.

Having on two occasions narrowly escaped being closed in by the ice, they had determined to return, and were making their way to the north when they fell in with the Peacock.

The condition of the Peacock for a winter's campaign was miserable, and on board the Flying-Fish there was no protection in the event of being frozen in. The positive nature of his instructions, combined with the report from the Flying-Fish, convinced Captain Hudson of the necessity of turning the vessels' heads towards a more temperate climate. On holding a council with his officers, he found them all of the opinion that the season for active operations in these latitudes had passed, and that it was advisable for the vessels to proceed without delay to the north.

The vessels accordingly steered to the northward.

The weather, during the cruise south, was exceedingly unfavorable; for, with few exceptions, during their stay in the Antarctic circle, they were enveloped in dense fogs, or found only occasional relief from them in falls of snow. The crew during the whole time enjoyed an unusual degree of health, which is not a little surprising; for, since leaving Orange

Harbor, the state of the ship had been such as to promote disease. The precautions and endeavors to keep the men dry entirely failed, from the condition of the ship.

On the night of the 29th a new danger beset them, that of being consumed by fire. At midnight they were aroused by the smell of burning, and smoke issuing from the main hold. The usual orders were given relative to the magazine. The drum beat to quarters. On opening the main hatch, smoke issued out in volumes, and fire was discovered under it, proceeding from a bag in full blaze. This was soon passed on deck and the fire extinguished. It was fortunately discovered in time, and was found to proceed from a quantity of coffee, which had been put below in the bag, after it had been burnt or roasted, the previous afternoon.

On the 1st of April, in latitude $60^{\circ} 12' S.$, longitude $84^{\circ} 20' W.$, Captain Hudson despatched the tender to Orange Harbor with his reports, and continued his route to Valparaiso. The last icebergs seen were in latitude $62^{\circ} 30' S.$, longitude $87^{\circ} 41' W.$; the temperature of air, 33° ; of water, 35° .

On the 21st the Peacock arrived in Valparaiso, where to their surprise they found the store-ship, the Relief, which had arrived some days previous.

The Relief left Orange Harbor on the 26th of February, for the purpose of visiting various places in the Straits of Magellan, to afford an opportunity of making investigations, and opening a larger field for our naturalists, during the fifty or sixty days they were to be detained on the coast. Most of the scientific men were accordingly transferred to her, and she was ordered to enter the Brecknock Passage, and thence into Cockburn Sound.

Various difficulties prevented her reaching the entrance to the Brecknock Passage, principally that of keeping too far off the coast on long tacks to the southward.

On the 17th of March, after being at sea twenty days, they approached the coast, and a gale ensuing from the southwest, Lieutenant-Commandant Long on the following day determined to run in and anchor under Noir Island. The wind was blowing a gale from the southwest, with thick weather and hail-squalls. Noir Island was discovered under the lee, judged to be about twelve miles distant when they steered for it. It becoming thick they did not discover the Tower Rocks until they were almost up with, and just had time to clear them.

These rocks presented a magnificent and fearful sight, the sea breaking completely over them. Three anchors were prepared. They rounded the southeast point of the island and stood in for the bay. At about five o'clock they anchored in seventeen fathoms, and the anchor took effect.

On the morning of the 19th the highest point of Noir Island was seen, capped with snow; the wind had abated somewhat, but not enough to permit of their landing in a snug little cove abreast of them. In the afternoon the wind again increased, and another anchor was let go. The sea broke tremendously on the reef astern, shooting up in columns, such as are seen to appear under the effect of mirage. After it became dark the wind shifted to the southward and eastward, which brought the sea from that quarter, and exposed them more both to it and the wind. The anchors shortly after began to drag, and the vessel was urged in the direction of a rock. Fortunately the wind abated towards morning, and came from its old quarter, southwest, more off the land, but still blew with violence.

On the morning of the 20th one of their chain cables was found to have parted. The chain was hove in with some difficulty and another anchor let go. The weather towards evening became again threatening, and produced no little anxiety. At nightfall it shifted in the same way it had done the previous evening, blowing again heavily. The ship was felt to be constantly dragging, accompanied by that grating kind of noise of the chain moving on the bottom, which is anything but agreeable. The rock astern, together with the reef toward which the wind and sea were both setting the ship, rendered their situation truly appalling. The prospect of any one surviving in case they had struck was extremely slight. The night was dark and stormy, and the dragging continued occasionally until midnight, when they found they had passed and escaped the rock and were near the reef. They now shipped a heavy sea over the bows, the shock of which was so great that it parted their cables, and their drifting became rapid. From the set of the current they just cleared the reef. When the point of the island bore east of south they slipped their cables, wore round, and made sail, and on the 21st at daybreak they found themselves off Cape Gloucester.

The conduct of Lieutenant-Commandant Long, his officers and men, during the perilous situation in which the Relief was

placed, deserves great praise; they did their duty in every respect. On the 13th of April the Relief arrived off Valparaiso without anchors. The Flying-Fish arrived at Orange Harbor on the 11th of April.

On the 17th of April, the time having expired for the return of the Relief, Lieutenant Wilkes concluded to leave Orange Harbor with the Vincennes and Porpoise. Believing the Relief had been detained, the Flying-Fish and Sea-Gull tenders were both left to await her arrival for ten days, to take the scientific men on board, and join him at Valparaiso, in order to prevent detention by the slow sailing of that ship.

On the 20th he took final leave of these waters, and on the 21st lost sight of land, passing to the northward of the island of Diego Ramieres.

On the 23d, during a strong gale, the Vincennes parted company with the Porpoise.

On the 15th Lieutenant Wilkes made the land off Valparaiso, and before noon anchored in the bay, where he found the Peacock and received tidings that the Relief had sailed with the store-ship Mariposa for Callao. The Porpoise arrived on the 16th, and the Flying-Fish reached Valparaiso on the 19th, after having experienced extremely boisterous weather.

On arrival at Valparaiso the officers and scientific men were assigned to such duties as were deemed most desirable to insure the results in the different departments.

On the 26th of May, 1839, the Porpoise sailed for Callao, in order that some repairs might be made on her.

On the 4th of June the ships made an attempt to get out of the bay, but were obliged again to cast anchor. At this season of the year light northerly winds usually prevail, and a heavy swell frequently sets in the bay, making the roadstead very uncomfortable, and at times dangerous.

On the second day after leaving Valparaiso they had a fresh gale from the northward, accompanied with much sea. During the night, in thick weather, they lost sight of the Peacock and Flying-Fish. On the 9th they got beyond the wind, which blows along the coast from the northward, and the weather improved, exchanging fog, rain, mist, and contrary winds for clear weather, and winds from the southwest.

On the 20th, in the evening, they passed through the Bouqueron Passage, having got several casts of the lead in three

and a quarter fathoms water; and by the assistance of the lights of the other vessels, anchored near the rest of the squadron at San Lorenzo, after a passage of thirteen days. They found them all well and proceeding rapidly with their repairs. The Peacock and Flying-Fish had arrived two days previous.

On receiving the reports of the commanders of the different vessels, active operations were at once begun to refit and replenish the stores. The necessary changes in officers and men were made in order to send the Relief home.

Lieutenant Wilkes found it necessary to have the Relief smoked, in order to destroy the rats with which she was infested, to save the stores from further damage. During this time the repairs of the Porpoise had been completed, and the usual observations for rating the chronometers, and with the magnetic instruments, were made on shore, and such officers as could be spared allowed to visit Lima.

On the 30th of June the squadron went over to Callao. From here several officers and the scientists made excursions to the Cordilleras, visiting Lima and Ponchoma, as well as the valleys of the Rimac and the Rio de Catavillo, and the towns of Obrajillo, Pasco, and Bannos: the latter celebrated for its mineral hot-springs, which flow from the base of a high mountain.

The town of Pasco is at an elevation of thirteen thousand feet, and situated in the plain of San Juan, at the head of two ravines, or gullies, one called Rumiallana, leading to the northward, and the other Huanuco, to the eastward, where the two great veins of Colquijirca and Pariajirca unite. These are supposed to extend some seventy miles in length, and the town of Pasco is situated at their junction. The part of the ground that has been broken up, and in which ores have been found, is about half a mile in length in a north and south direction, and about one-fourth of a mile east and west. Within the whole of this extent ores have been mined of greater or less value, and the mines formerly worked and now deserted are said to amount to upwards of a thousand.

On the 13th of July, 1839, the squadron had finished the necessary outfits and taken in the necessary stores. The remainder of the latter were embarked in the store-ship Relief, which was ordered to land a part of them at the Sandwich Islands, and the rest at Sydney, New South Wales, after

which to proceed to the United States by the way of Cape Horn.

At five P. M., having a light breeze, the signal was made to get under way, and the ships were soon standing out of the bay under all canvas.

Lieutenant Wilkes had determined, on leaving Callao, to take up the examination of the Paumotu Group, recommended to the expedition by that distinguished navigator and promoter of science, Admiral Krusenstern. He therefore steered for the island of Minerva, or Clermont de Tonnerre, one of the most eastern of the Paumotu Group, or Cloud of Islands, as the name implies. He deemed this to be the most interesting point at which to begin the surveys, and the researches of the naturalists, particularly as it was inhabited, and would thus enable them to trace the inhabitants from one end of Polynesia to the other, across the Pacific. At the same time it afforded a very desirable point for magnetic observations, and a visit to it would also enable him to settle a dispute between the two distinguished English and French navigators, Captains Beechey and Duperrey, relative to its geographical position.

On the 13th of August he made Clermont de Tonnerre, or Minerva Island. Clermont de Tonnerre, being the first low coral island met with, naturally excited a great deal of interest.

At first sight the island appeared much like a fleet of vessels at anchor, nothing but the trees being seen in the distance, and as the ship rises and sinks with the swell of the ocean, these are alternately seen and lost sight of. On a nearer approach the whole white beach was distinctly seen, constituting a narrow belt of land, of a light clay color, rising up out of the deep ocean, the surf breaking on its coral reefs, surrounding a lagoon of a beautiful blue tint, and perfectly smooth. This island was twelve feet above the level of the sea, and six hundred feet wide to its lagoon, and is composed of coral debris and vegetable matter. The shrubs are few, and not more than from twelve to fifteen feet high; the coconut, palms, and Pandanus showing conspicuously above them. It was ten miles long by one and a half wide, lying in a west-northwest and east-southeast direction. The first sounding on the east side of the island, at three hundred feet from the reef, was obtained in ninety fathoms, coral sand; at one hundred and eighty feet, eighty-five fathoms, coral sand; at one

hundred and thirty feet, seven fathoms, hard coral; being at the edge of a nearly perpendicular shelf; thence to the shore, the bottom was uneven, decreasing to four, three, and two fathoms, until a second or upper coral-shelf arose, over which the water at high-tide flowed. This extended to where the beach is composed of broken coral and shells, and arose on a gentle declivity to ten feet high.

The Peacock sounded within three-quarters of a mile from the southern point of the island; at three hundred and fifty fathoms, the lead brought up for a moment, and then again descended to six hundred fathoms without reaching bottom. When it was hauled up it had a small piece of white and another of red coral attached to it. The west side of the island is a bare reef, over which the surf breaks violently. There is no opening or entrance to the lagoon.

On the 16th the ships bore away for Serle Island; they made the distance between the two islands, twenty-six miles and two-tenths. No signs of any other island exist between these two.

Serle is a low coral island, and has a large and very regular clump of trees on its western end, which, at a distance, might be taken for a mound or hill.

On the 19th of August the ships made Henuake, Honden, or Dog Island, and came up with it about noon. The boats were at once despatched, in order to ascertain if a landing could be effected, and the ships began the surveying operations. The number of birds seen hovering over the island was an indication that it was not inhabited.

On the 23d of August the ships made the Disappointment Islands of Byron: they are two in number, called Wytoohee and Otooho.

On the morning of the 24th they were off the northwest end of the former island. Many canoes came off to the ship: as they approached the vessels the natives were heard, while at some distance, singing; and, as they drew near, the clamor increased, accompanied with much laughing and many gesticulations; but none of them could be induced to come on board, and they were not willing to part with anything but some pieces of old matting. An attempt was made to get some of their paddles, but they rather ridiculed the idea of parting with them.

On the morning of the 9th of September the ships were in

sight of Metia or Aurora Island. It was totally different in appearance from those we had met with, though evidently of the same formation. It was a coral island uplifted, exposing its formation distinctly, and as such was very interesting. On approaching its eastern end Lieutenant Wilkes sounded at about one hundred and fifty feet from its perpendicular cliff, and found no bottom with one hundred and fifty fathoms of line. The cliff appeared worn into caverns.

The same evening they bore away for Tahiti, at which island they arrived on the 10th. Lieutenant-Commandant Ringgold boarded the Vincennes and brought off Jim, the pilot; he reported all well on board the Porpoise. At sunset they anchored in Matavai Bay.

Lieutenant-Commandant Ringgold, in the Porpoise, after parting company on the 1st of September, proceeded to the south side of Raraka, in fulfilment of his instructions. He found the whole southern part of it a bare reef, with the surf breaking violently over it. When off the south point he made the isle of Katiu or Sacken to the south, and that of Makima to the east, and connected them; after which he proceeded to the westward, passing Aratica (Carlshoff), and thence to Nairsa or Dean's Island, which he made on the 5th; fixed its western end, passed along its south to its western side, and thence to Krusenstern's Island, to the westward, which he circumnavigated; from thence went direct to Tahiti, anchored in Papieti Harbor on the 9th, and the next day proceeded to Matavai Bay, the place of rendezvous.

On the 12th the Peacock arrived, having passed to the Rurick Islands or Arutua, the north end of which lies in latitude $15^{\circ} 15' S.$, longitude $146^{\circ} 51' W.$ A landing was attempted at several places in the boats. One of them succeeded near a cocoanut-grove, but the two that went to land at the village found the surf too high to attempt it.

The north shore of Arutua Island was surveyed, when they bore away, and connected it with Nairsa, or Dean's Island, along which they ran the whole length of its south side by daylight. The last-named island is for the most part a washed reef, with no opening. The compact coral blocks showed themselves here more conspicuously, and in greater numbers than before seen.

After making the west end of Nairsa Captain Hudson sighted Krusenstern's Island, and then stood for Metia Island,

to the southward, on which the officers landed the next day on its western side. Their examination confirmed the facts already given relative to its appearance.

The next day they made Tetuaroa, to the northward of Tahiti, formerly celebrated as the resort of the Tahitians, for the purpose of recovering from the bodily diseases brought on by their debaucheries, etc. It is a low island, about six miles long, with a few trees upon it, and a reef off its southern end, extending half a mile. It is plainly to be seen from the high ridges of Tahiti.

On the 14th the Flying-Fish arrived. She had visited and surveyed King George's Group, which appeared well inhabited, and have entrances to their lagoons on the west side. The native names of the two islands are Tiokea and Oura. Oura bears S. 68° W., distant four and a half miles. Then the tender passed to Manhii and Ahii, round the north side of Nairsa, or Dean's Island, to Tahiti.

The two peninsulas, if they may be so termed, of which the island of Tahiti is made up, are of very different characters. The smaller one, called Tairaboo, and usually spoken of as "the small island," is the most fertile.

The whole island is of volcanic formation, but there is no longer any active igneous action, nor is there any well-defined crater to be seen. Coral reefs, with occasional openings, are attached to the shores, and the larger island (Tahiti) has also a sea reef. Between the two reefs is an almost continuous channel for boat navigation, and on the northern side they enclose many safe and commodious harbors for shipping. On this side also vessels may pass from harbor to harbor, within the outer reef. This reef varies in breadth from a few yards to fifty, or even a hundred. The shore that adjoins the coral reef is formed of black volcanic sand, occasionally mixed with comminuted shells, which give it a grayish hue. Basaltic ridges reach the sea at intervals, and form projecting points of moderate elevation.

The Porpoise, having been refitted, was sent to sea on the 20th September, 1839, for the purpose of again visiting the west end of Nairsa, or Dean's Island, with Krusenstern's and Lazareff. She was also ordered to pass over the supposed locality of Recreation Island, and then to meet the Vincennes at Rose Island, the easternmost of the Samoan or Navigator's Group.

The Vincennes moved to the harbor of Papieti on the 22d September. At the same time orders were given to the Peacock and Flying-Fish to take on board their articles from Point Venus, and to follow as soon as they had done so. The tender required some repairs, which could be done with more safety at Papieti. Both vessels joined the Vincennes in that harbor on the 24th.

Papieti, in whose harbor the ships were lying, is one of the largest villages on the island; being the ordinary residence of the queen, and the abode of the foreign consuls. The foreign residents are also for the most part collected here. Among all its dwellings, the royal residence and the house of Mr. Pritchard are the only ones which possess the luxury of glazed windows. The houses of the foreigners are scattered along the beach, or built immediately behind it.

While lying at Papieti the men had an opportunity of seeing the manner in which justice is administered in criminal cases. The court was held in the council-house, an oblong building in the native style. The alleged crime was assault with intention of rape. The judges were seated on mats, having Paofai, their chief, a little in front of the rest; and the audience sat or stood around. The culprit was a petty chief called Ta-ma-hau, a man of huge size, and apparently somewhat of a bully; he stood during the trial leaning against one end of the house, with an air of cool indifference. His accuser was a damsel not remarkable for personal beauty; she sat near the door, among a number of other women. The witnesses were patiently heard, and the matter argued, after which the six judges severally gave their opinions, and made remarks on the evidence, to which Paofai listened in an attentive and dignified manner, expressing, as occasion demanded, his assent or dissent. He then pronounced the verdict of the court, by which the prisoner was acquitted, but did not dismiss him without a brief and merited castigation. It appeared, that although not guilty of the crime alleged, he had, while intoxicated, addressed indecent language to his accuser.

After the departure of the Vincennes a party from the Peacock, consisting of Mr. Dana and some others, obtained leave of absence from Captain Hudson for five days, with the design of ascending Mount Aorai. They commenced the ascent immediately in the rear of Papieti, and by noon on the second

day had reached an elevation of five thousand feet, where they stood upon a platform about twelve feet square; thence they looked down eastward two thousand feet into the Matavai valley; to the westward they had a gorge about a thousand feet deep running into Toanoa valley; to the south the platform on which they stood was united by a narrow ridge with Mount Aorai, which was apparently only a short distance before them. In this place they were compelled to pass the night by a fog which enveloped them, through which the guides were unwilling to lead them, refusing to proceed farther along the dangerous path until the clouds should clear away.

The next morning was clear, and they pursued their ascending route along the edge of a ridge not more than two or three feet in width, having on each side an abyss two thousand feet deep. Seen from this ridge, looking south, Mount Aorai seemed a conical peak, but as it was approached it proved to be a mountain wall, whose edge was turned toward them. The only ascent was by a similar narrow path between precipices, and surpassed in steepness those they had already passed. The width of the crest seldom exceeded two feet, and in some cases they sat upon it as if on horse-back, or were compelled to creep along it upon their hands and knees, clinging to the bushes. At last they reached the summit, where they found barely room to turn round. The ridge continued for only a short distance beyond them, being then cut across by the Punaania valley.

From the summit of Aorai they had a magnificent view; to the south it was speedily bounded by the peaks of Orohena and Pitohiti, whose steep sides rose from the valley beneath them; to the east they had the rapid succession of ridge and gorge which characterizes Tahitian scenery; to the west, over a similar series of jagged ridges, Eimeo and Tetuaroa stood out from the horizon of the sea in bold relief; to the north they looked down upon the plain, studded with groves of cocoa-nut and orange, and upon the harbor with its shipping and the encircling reefs of coral.

A short distance below the summit of Mount Aorai, a mass of turrets and pinnacles, which from its singular outline is called the Crown, runs along the top of a narrow ledge.

Except the plain of the coast no level land is in sight but

the valley of Punaania; this is divided from that of Matavai by a ridge of the usual edge-like form, running upward towards Orohena.

Very few of the natives who are now alive have been on the summit of Aorai; their paths in this direction, as in other places, do not lead beyond the limit of the groves of wild banana (*fahie*). Beyond the height at which these cease to grow the ground is chiefly covered with a wiry grass (*Gleichenia*), which springs up in many places to the height of ten feet, and is everywhere almost impenetrable. When this was not too high they broke it down by casting their bodies at full length upon it; and when of larger growth they had recourse to cutting away or breaking its stiff and crowded stems, until they had formed a way beneath it, whence the light was almost excluded.

The want of water, which after a few days of dry weather is seldom found even in the elevated valleys, was an additional discomfort. It is to be recommended to future travellers in the mountains of Tahiti to make provision against this inconvenience. The party was so much distressed from this cause as to enjoy the dew upon the leaves as a luxury.

Mr. Dana reported that the visit to Aorai conclusively settled one questionable point in the geology of the island. He found upon its summit neither corals nor "screw-shells," which vague rumors have long located on the top of the Tahitian mountains. Every one who has visited this island has probably heard that such formations existed in these lofty positions; but the report rests wholly on native authority. Moera, the guide who accompanied the party, and who resides near One-tree Hill, insisted that he had seen both, and promised to show them. On reaching the summit he began digging, and the rest of the party aided him. He soon brought up what he called coral, but which proved to be a grayish trachytic rock; and, although he continued to dig for some time longer, he could find nothing which he could venture to exhibit as screw-shells.

In their descent from Mount Aorai they followed the western side of the valley of Papoa, along a narrow ledge similar to that by which they had ascended. After proceeding for two hours they reached a small plain, which speedily narrowed to a mere ledge of naked rock with a steep inclination; this they were compelled to traverse on their hands

and knees, taking the greatest care to avoid detaching the rock, which in many places overhung a precipice; next followed a perpendicular descent of about twenty-five feet, down which they let themselves by ropes; this difficulty overcome the rest of the route presented no dangerous features, and was performed in safety.

On the 20th of September, 1839, at daylight, the Vincennes got under way from Eimeo, and made sail to the westward, passing th. Society Island Group, viz.: Sir Charles Saunders' Isle, Huaheine, Tahaa, Borabora, Maufli and Moutoiti. All of these, with the exception of the last, are high lands.

On the 30th they made Bellinghausen's Island, which is a low coral island, similar to those which have been already described. It was uninhabited, and is of a triangular form.

In the afternoon they again made sail to the westward. On the 6th of October passed near the locality of the Royal George Shoal, but saw nothing of it.

On the 7th, which was the day appointed for the rendezvous off Rose Island, they came in sight of it, and at the same time descried the Porpoise. That vessel had passed by Nairsa or Dean's Island, and connected the survey of it with that of Krusenstern's and Lazareff. They are uninhabited, though occasionally visited by the natives of Nairsa Island. The position of Recreation Island was passed over, but no signs of land discovered.

Rose Island, the most eastern of the Samoan Group, was discovered by Freycinet, who gave it its name. It appears, at first, like a round knoll of land, but on a nearer approach this is found to arise from a large clump of *Pisonia* trees, similar to those found growing in the low archipelago.

On the 7th they left Rose Island, and at sunrise made the island of Manua, which is two thousand five hundred feet above the level of the sea. It has the form of a regular dome, rising in most places precipitously from the water to the height of three or four hundred feet, after which its ascent appears more gentle and even. It is sixteen miles in circumference, is well covered with a luxuriant vegetation, and has many cocoa-nut groves on its northwest side.

On approaching it Oloosinga was in sight and shortly after Ofoo. These two islands lie to the northwestward at the distance of about four miles.

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nearly perpendicular on both sides, and is three miles in length. So precipitous is it at its ends that it is impossible to pass round it on the rocks. The strip of land is about five hundred yards in width, on which bread-fruits and cocoa-nuts grow in great profusion and sufficient abundance for all the wants of the natives.

At daylight on the 11th the Vincennes was near the eastern end of Tutuila, and off the island of Anuu.

The island of Tutuila is high, broken, and of volcanic appearance. It is seventeen miles long, and its greatest width is five miles. The harbor of Pago-pago penetrates into the centre, and almost divides the island into two parts. It is less varied in surface than the Society Islands, and its highest peak, that of Matafoa, was found to be 2,327 feet above the sea. The spurs and ridges that form the high land are like those of Tahiti—precipitous, sharp-edged, and frequently rise in mural walls from the water to a height of three or four hundred feet, showing the bare basaltic rock. Above this height the surface is covered with a luxuriant vegetation to the very top of the mountains; the cocoanut tree and tree-fern give the principal character to this beautiful scenery. Dead coral is seen along the shores above high-water mark.

The harbor of Pago-pago is one of the most singular in all the Polynesian isles. It is the last point at which one would look for a place of shelter; the coast near it is peculiarly rugged and has no appearance of indentations, and the entrance being narrow, is not easily observed. Its shape has been compared to a variety of articles; that which it most nearly resembles is a retort. It is surrounded on all sides by inaccessible mural precipices, from 800 to 1,000 feet in height. The lower parts of these rocks are bare, but they are clothed above with luxuriant vegetation. So impassable did the rocky barrier appear in all but two places, that the harbor was likened to the valley of Rasselas changed into a lake. The two breaks in the precipice are at the head of the harbor and at the Pilot's Cove. The harbor is of easy access, and its entrance, which is about a third of a mile in width, is marked by the Tower Rock and Devil's Point.

The Peacock and Flying-Fish again joined the Vincennes on the 18th of October. Orders were given them to proceed to Upolu, to commence the survey of that island.

The climate of Tutuila is mild and agreeable, particularly

at Pago-pago, where the temperature is lower than it is elsewhere on the island, in consequence of its generally being overshadowed with clouds that hang on the high land. There is usually a fine breeze, which sets in about ten o'clock and continues until sunset. The nights being calm, much dew falls in fine weather.

The surveys of the island of Tutuila having been completed by the 23d of November, on the 25th the Vincennes weighed anchor. In leaving the harbor she had a narrow escape from wreck; the almost constant southeast wind, which is fair to a vessel entering the bay, and makes it easy of access, is ahead on going out, which renders egress difficult; it therefore becomes necessary to make frequent tacks, and a vessel must be well manœuvred to escape accident, for to miss stays would be almost certain to bring about shipwreck. When she set out the wind was light, and it failed altogether just as she reached the most dangerous part of the channel; they were, in consequence, brought within an oar's length of the reef, on which a heavy surf was breaking. The moment was a trying one, and the event doubtful; all were at their stations, and not a word was spoken. The crisis was luckily passed.

The distance between Tutuila and Opolu of thirty-six miles was soon passed, and in the morning they were delighted with the view of the latter island as they ran down its coast to the westward. It appears much richer and more fruitful than the other islands of this group, and may be described as of moderate height, rising gradually in a succession of ridges from a low shore; here and there broad and fertile valleys are seen, with numerous streams falling from the mountains in cascades. The eastern portion of the island is much more rugged than the western; the main ridge runs east and west, and ridges or spurs run back to it from the northern coast in a southeast direction. Between these lateral ridges are broad and fertile valleys, decreasing in width as they recede from the coast. The shore is lined with a coral reef, which is now and then interrupted by channels, and forms snug and convenient harbors.

At noon they descried the Peacock lying in the harbor of Apia, and shortly afterwards Lieutenant Wilkes received a message from Captain Hudson, saying that his presence was required on shore. In the hope that it was not a business

of such a nature as to cause detention, he left the Vincennes in the offing, while he went ashore in his boat. On reaching the land he found the chiefs engaged in the trial of a native called Tuvai, who had killed an American named Edward Cavanaugh, a native of New Bedford.

It appeared that on Captain Hudson's arrival the murderer was pointed out to him in the village, upon which he very properly determined to have the offender punished, and gave orders to have him arrested. He was, in consequence, seized in a house near the water, and carried on board the Peacock. Captain Hudson then requested a conference with the neighboring chiefs, who, in consequence, had assembled on the 27th.

The *fono*, as such assemblies are called, was held in the council-house, or *fale-tele*, where the chiefs were collected. Captain Hudson stated that the object of his having requested them to assemble was to bring the accused to a trial before them, in order that if his guilt were established, he might be brought to condign punishment; he then pointed out to them the guilt and consequences of the crime of murder, and declared the course he had considered it his duty to adopt. The chiefs listened attentively to this address, and in reply, through the principal one, admitted that the man taken was in reality the guilty person, a fact known to every person upon the island. Captain Hudson then stated to them that it was absolutely necessary that Tuavi should be promptly punished, in order that others might be deterred from the commission of the same crime. He suggested, however, that in spite of the universal belief in Tuvai's having committed the crime, it was proper that he should undergo a trial, or at least an examination, in order that he might have the privilege of being heard in his own defence.

This suggestion being approved, Tuvai was brought on shore under a military guard, and placed in the centre of the building. He was an ill-looking fellow of about twenty-eight years of age, and manifested no fear, but looked about him with the greatest composure.

The trial was simple enough; he was first asked by the chiefs whether he was guilty of the crime, to which he answered that he was; being next asked why he had committed it, he replied that he had done it in order to possess himself of the man's property (clothes and a knife).

The chiefs, among whom was Pea, of Apia, to whom the criminal was distantly related, made every effort in their power to save his life, stating that he was in darkness, and therefore unconscious of the guilt of the action when he committed the murder; that as they had but just emerged from heathenism, they ought not to be subjected for past actions to laws they knew not; that these laws were made for people who occupied a more elevated station; that Tuvai was a poor man of no account, and was not a person of sufficient importance to be noticed by a great people like us; that faa Samoa (the Samoan fashion) did not allow men to be put to death in cold blood, but that after so long a time had elapsed, as in the instance before them, it admitted of a ransom.

Pea was seconded in his endeavors by Vavasa, of Manono, one of the finest looking of the chiefs, whose attitudes and movements were full of grace, and his manner exceedingly haughty and bold.

In reply to their arguments, Captain Hudson told them that nothing but the life of the offender could satisfy the demands of justice, and that they must execute the criminal themselves. This announcement caused much excitement.

The chiefs after much reluctance consented, but expressed great repugnance to an immediate execution.

At this point of the discussion the Vincennes was announced as being in sight, and the proceedings were suspended. An officer was immediately despatched, who, as has already been mentioned, boarded that vessel off the harbor.

When Lieutenant Wilkes landed he found the assembly anxiously awaiting the result of his arrival. After a full discussion of the whole subject, they came to the conclusion that it would be best to transport the criminal to some other island, for it appeared probable that this would have a better effect than even his execution, as it would be longer remembered, while to cause him to be put to death might naturally excite a desire of revenge.

This decision was at once communicated to the chiefs, with a statement that in conformity with the laws of Tahiti in such cases, Tuvai should be transported to a desert island, where he would never again have an opportunity of killing a white man. The chiefs, although evidently relieved from the most intense part of their distress, were still much affected by this decision.

The prisoner was then ordered to be taken on board the Peacock, whither he was followed by a crowd of natives with many tears and lamentations, among whom his wife was the most affected.

The island of Manono, whose inhabitants exerted such an influence in the closing scenes in the war of Aana, is situated within the sea-reef of Upolu. It contained eleven hundred inhabitants, and is covered with forests throughout its whole extent; its circumference is about four miles.

In spite of its small extent and scanty population, Manono is identified with the political history of all the other islands of the group; for, during the reigns of the two Tamafagos, it held supremacy over them. The reason of its acquiring and exercising this political supremacy is principally to be ascribed to the possession by its inhabitants of the small island of Apolima, which they used as their "olo" or citadel. To this retreat, inaccessible except at a single point, the inhabitants of Manono were in the habit of retiring when pressed by too powerful an enemy, and when his rage had spent itself they thence returned to their home with undiminished numbers.

This natural fortress lies between Manono and Savaii, and soundings extend to it both from the shores of Upolu and Savaii. The coral reef attached to it is but small.

Apolima, on the most cursory examination, is evidently the crater of an extinct volcano. Perpendicular cliffs rise from the sea around its whole circuit, except at a single point on its northern side. Here the lip of the crater is broken down, and admits the water of the sea into a small bay, which affords a safe harbor for boats. The entrance to this is so narrow as to admit no more than one boat at a time, and is dangerous whenever there is any surf. It may, therefore, be easily defended. There is only one other point on the island where it is possible to effect a landing, namely, at a small height to the westward of the bay, and here it can only be done when the water is perfectly smooth. But an enemy landing here would have made no progress, for before the interior can be reached from this point the steep and precipitous rocks remain to be climbed.

The highest point of Apolima is on its south side, where it is four hundred and seventy-two feet above the sea. The perpendicular cliffs which face the sea are of course bare of

vegetation ; but with this exception the whole surface is covered with cocoa, bread-fruit and other trees, or with plantations of taro, yams, etc.

In the centre of the island is a village of about twenty houses, and the permanent population consists of no more than about seventy-five persons.

By the 9th of November the whole squadron was assembled in the harbor of Apia, after having been actively engaged in examining the different islands ; but in making surveys of the coasts and harbors these examinations extended to the shores and reefs, which were all minutely surveyed in boats. The usual observations in astronomy, magnetism and meteorology, together with full record of the tides, were made and kept.

On the 10th the squadron sailed from Apia to New South Wales.

On the 10th of November they weighed anchor from Apia, and made all sail to the westward ; and on the 11th had lost sight of Savaii.

On the 12th they made Uea or Wallis Island, and later the same day were off its southern end. Instead of a single island, as might be expected from the name, there are nine separate islands, varying in circuit from one to ten miles, and enclosed with one extensive reef. The land is, in general, high.

On the 18th they saw Matthews' Rock, whose height is 1186 feet. It is of a conical shape about a mile in circumference, and principally composed of conglomerate. A dike of basalt was observed occupying about a third of the width of the island. In order to obtain specimens a boat was despatched to endeavor to effect a landing ; the undertaking proved difficult, but was accomplished by Dr. Fox and Midshipman Henry, who swam through the surf. They brought off some specimens of porphyritic rock, and a few small crystals of selenite. Patches were seen on the northern side of the island, appearing as if covered with sulphur.

On the 26th November the Vincennes made Ball's Pyramid, which appears to be a barren rock rising abruptly from the sea.

At sunset on the 29th November she made the light-house on the headland of Port Jackson. They had a fair wind for entering the harbor, and although the night was dark, and they had no pilot, yet as it was important to avoid any loss

of time, Wilkes determined to run in. He adopted this resolution, because, although they were all unacquainted with the channel, he was assured that the charts in his possession might be depended upon, and they stood on under a press of sail, accompanied by the Peacock. At 8 p. m. they found themselves at the entrance of the harbor. At half-past 10 p. m. they quietly dropped anchor off the cove, in the midst of the shipping, without any one having the least idea of their arrival.

When the good people of Sidney looked abroad in the morning they were much astonished to see two men-of-war lying among their shipping, which had entered the harbor in spite of the difficulties of the channel, without being reported, and unknown to the pilots.

The Porpoise and Flying-Fish arrived the next day.

The squadron remained at Sidney until the 26th of December, 1839, when they weighed anchors and set about preparing the ships for the Antarctic cruise.

The 1st of January, 1840, was one of those days which are termed, both at sea and on shore, a weather-breeder. The sea was smooth and placid, but the sky was in places lowering, and had a wintry cast, to which we had long been strangers; the temperature shortly began to fall, the breeze to increase, and the weather to become misty. In a few hours the ships were sailing rapidly through the water with a rising sea, and by midnight it was reported that the tender Flying-Fish was barely visible. Lieutenant Wilkes shortened sail, but it was difficult to stop her way; and on the morning of the 2d of January the fog was dense, and the Peacock and Porpoise only were in sight; the Peacock and Porpoise were ordered to stand east and west, in order to intercept the tender, but they returned without success; the ships also fired guns in hopes of being heard. In the afternoon Lieutenant Wilkes deemed it useless to wait any longer for her, and accordingly proceeded on his course for Macquarie Island with all sail set. This separation of the tender took place in the latitude of 48° south. The officers and crew were not slow in assigning to the Flying-Fish a similar fate with her unfortunate mate, the Sea-Gull. Men-of-war's men are prone to prognosticate evil, and on this occasion they were not wanting in various surmises.

The barometer now began to assume a lower range, and

the temperature to fall below 50° . On the 3d, the fog continuing very thick, the Peacock got beyond hearing of the horns, bells, drums and guns, and was parted with.

The morning of the 7th was misty, with squally weather. A heavy sea rising, and a strong gale setting in, they lost sight of the Porpoise for a few hours. Being unable to see beyond an eighth of a mile it was thought imprudent to run for fear of passing Macquarie Island, and they hove-to to await its moderating.

The 10th they encountered the first iceberg, and the temperature of the water fell to 32° . They passed close to it, and found it a mile long, and one hundred and eighty feet in height. They had now reached the latitude of $61^{\circ} 8'$ south, and longitude $162^{\circ} 32'$ east. The second iceberg seen was thirty miles, and the third about fifty-five miles south of the first. These ice-islands were apparently much worn by the sea into cavities, exhibiting fissures as though they were ready to be rent asunder, and showed an apparent stratification, much inclined to the horizon.

The fair wind from the northwest (accompanied with a light mist, rendering objects on the horizon indistinct) still enabled them to pursue the course southerly. Icebergs became so numerous as to compel them occasionally to change their course. They continued of the same character, with caverns worn in their perpendicular sides, and with flat tops, but the latter were now on a line with the horizon. Towards 6 p. m. of the 11th they began to perceive smaller pieces of ice, some of which were not more than an eighth of a mile in length, floating as it were in small patches. As the icebergs increased in number the sea became smoother, and there was no apparent motion. Between 8 and 9 p. m. a low point of ice was perceived ahead, and in a short time they passed within it. There was now a large bay before them. As the vessels moved rapidly, at 10.30 p. m. they had reached its extreme limits, and found their further progress entirely stopped by a compact barrier of ice, enclosing large square icebergs. The barrier consisted of masses closely packed, and of every variety of shape and size. They hove-to until daylight. The night was beautiful, and everything seemed sunk in sleep, except the sound of the distant and low rustling of the ice, that now and then met the ear. They had now reached the latitude of $64^{\circ} 11'$ south, longitude $164^{\circ} 30'$

east, and found the variation twenty-two degrees easterly. One and all felt disappointed, for they had flattered themselves that the way was open for further progress to the southward, and had imbibed the impression that the season would be an open one. What surprised him most was a change in the color of the water to an olive-green, and some faint appearances resembling distant land; but as it was twilight, and he did not believe the thing credible, he put no faith in these indications, although some of the officers were confident they were not occasioned by icebergs. The barometer stood at 29.200 in.; the temperature of the air 33°, water 32°. They lay-to until four o'clock. As it grew light, on the 12th, a fog set in so thick that they lost sight of the Porpoise, and could not hear any answer to the signals and therefore determined to work along the barrier to the westward.

They were all day beating in a thick fog with the barrier of ice close to them, and occasionally in tacking brought it under their bow; at other times they were almost in contact with icebergs. During the whole day they could not see at any time farther than a quarter of a mile, and seldom more than the ship's length. The fog, or rather thick mist, was forming in ice on the rigging. From the novelty of the situation, and the excitement produced by it, they did not think of the danger.

We shall now leave the Vincennes and Porpoise pursuing their course to the westward with a head wind, and bring the Peacock up to the barrier.

Previously to parting company on the 3d of January the crew of the Peacock had also been engaged in building hurricane-houses, caulking and chintzing, to secure them from the wet and cold. After parting company Captain Hudson immediately steered for the first rendezvous, Macquarie Island, and was more fortunate in reaching it, although the Peacock had experienced the same kind of weather, and currents setting to the eastward.

On approaching the island they discovered large patches of kelp, and saw numerous Procellaria and albatrosses about the ship. On the 10th of January they made the island, and observed a reef of rocks extending three-quarters of a mile off its south end. Passing within a short distance of it they did not observe any of the signals of the squadron flying, as

they had anticipated. They, notwithstanding, stood in, lowered a boat and despatched several officers to put up the signal, make experiments and collect specimens. The boat approached an indentation on the west side, too open to be called a bay, and found that the surf was running high, and beating with great violence against the rocks, which together with the kelp rendered it dangerous to attempt landing. They made for several other places which looked favorable at a distance, but on approaching them they were found even less accessible. The boat then returned to the first place to make another attempt, which was attended with great difficulty. The boat's anchor was dropped, and she was backed in with great caution to the edge of the rollers; the surf was very high, and rolled in with a noise like thunder, breaking furiously upon the rocks, so as to make the boat fairly tremble, and threatening every moment to overwhelm her; once or twice she was prevented from getting broadside-to, by hauling out towards the anchor. At length, after a dozen fruitless attempts, and awaiting a favorable opportunity, Mr. Eld and a quartermaster succeeded in getting ashore, but not without being immersed up to their breasts. It was found impossible to land any instruments; and the quartermaster was despatched to erect the necessary signals, while Mr. Eld proceeded to visit the penguin rockery not far distant. On approaching the island it had appeared to be covered with white spots: these excited conjecture; but after landing the exhalations rendered it not long doubtful that it was birdlime (guano).

On the 13th, in latitude $61^{\circ} 30'$ S., longitude $161^{\circ} 5'$ E., the first ice-islands were seen.

There was no occasion on the night of the 13th to light the binnacle-lamps, as newspaper print could be read with ease at midnight. On the 14th, while still making much progress to the south, and passing occasionally icebergs and brash-ice, the water appeared somewhat discolored.

On the 15th the Peacock passed many ice-islands. Many whales were seen; albatrosses, petrels, and Cape pigeons were frequent about the ship. At four p. m. the mist raised a little, and to their surprise they saw a perfect barrier of ice, extending to the southwest, with several large icebergs enclosed within it. Shortly after they discovered a sail, which proved to be the Porpoise.

The Vincennes and Porpoise were left near the icy barrier, separated by the fogs and mists that prevailed at times. The Porpoise, on the 13th, in latitude $65^{\circ} 8' S.$, longitude $163^{\circ} E.$, discovered several sea-elephants on the ice. From the numerous sea-elephants and the discoloration of the water and ice, they were strongly impressed with the idea of land being in the vicinity, but on sounding with one hundred fathoms no bottom was found; Lieutenant-Commandant Ringgold felt convinced, from the above circumstances, and the report that penguins were heard, that land was near, and thought he could discern to the southeast something like distant mountains. A nearer approach was impossible, as they were then in actual contact with the icy barrier.

On the 14th two sea-elephants were captured and brought on board; they proved to be the *Phoca proboscidea*.

On the 15th the Peacock and Porpoise were in company; and, after having had communication with each other, the vessels again separated, standing on opposite tacks.

On the 16th the three vessels were in longitude $157^{\circ} 46' E.$, and all within a short distance of each other. The water was much discolored, and many albatrosses, Cape pigeons, and petrels were seen about the ships. On board the Vincennes, they sounded with two hundred and thirty fathoms and found no bottom; the water had the appearance of an olive-green color, as if but forty and fifty fathoms deep.

On this day (16th of January) appearances believed at the time to be land were visible from all the three vessels, and the comparison of the three observations, when taken in connection with the more positive proofs of its existence afterwards obtained, had left no doubt that the appearance was not deceptive. From this day they date the discovery which is claimed for the squadron.

On board the Peacock it appears that Passed-Midshipmen Eld and Reynolds both saw the land from the mast-head and reported it to Captain Hudson: he was well satisfied on examination that the appearance was totally distinct from that of ice-islands, and a majority of the officers and men were also satisfied that if land could exist that was it.

On board the Porpoise Lieutenant-Commandant Ringgold states that "he went aloft in the afternoon, the weather being clear and fine, the horizon good, and clouds lofty; that he saw over the field-ice an object, large, dark, and rounding, resem-

bling a mountain in the distance; the icebergs were all light and brilliant, and in great contrast." He goes on to say, in his report, "I watched for an hour to see if the sun in his decline would change the color of the object: it remained the same, with a white cloud above, similar to that hovering over high land. At sunset the appearance remained the same. I took the bearings accurately, intending to examine it closely as soon as we got a breeze. I am thoroughly of opinion it is an island surrounded by immense fields of ice. The Peacock in sight to the southward and eastward over the ice; the sun set at a few minutes before ten; soon after a light air from the southward, with a fog-bank arising, which quickly shut out the field-ice."

On the 22d the Peacock and Porpoise were again in sight of each other.

On that day the Vincennes passed the place through which the Peacock entered on the 23d, and found no opening. To judge from the manner in which the ice moved during the time the Peacock was enclosed in it, he was inclined to ascribe the alternate opening and closing of the passage into the bay to a tide setting along this coast. In support of this opinion it is sufficient to state that the strength of the winds experienced on board the vessel was at no time sufficient to account for the manner in which the ice was found to move.

About thirty miles to the westward of this point the Vincennes passed a remarkable collection of tabular icebergs that probably were attached to a rocky islet, which formed a nucleus to which they adhered. It was quite obvious that they had not been formed in the place where they were seen, and must, therefore, have grounded, after being adrift.

On the 23d of January, after passing around this group of icebergs, the sea was found comparatively clear, and a large open space showed itself to the southward. Into this space the course of the Vincennes was immediately directed. While thus steering to the south the appearance of land was observed on either hand, both to the eastward and westward.

Pursuing this course the Vincennes by midnight reached the solid barrier, and all approach to the land on the east and west was entirely cut off by the close packing of the icebergs. The commander was, therefore, reluctantly compelled to return, not a little vexed that he was again foiled in his endeavor to reach the antarctic continent. This was a deep indentation

in the coast about twenty-five miles wide: we explored it to the depth of about fifteen miles, and did not reach its termination. This bay was called Disappointment Bay: it is in latitude $67^{\circ} 4' 30''$ S., longitude $147^{\circ} 30'$ E. The weather was remarkably fine, with a bracing air: the thermometer in the air 22° , in the water 31° .

The next day, 24th, the ship stood out of the bay and continued its course to the westward.

The Vincennes remained in the Antarctic sea up to the 21st of February, and then Lieutenant Wilkes, feeling satisfied that a further continuance in this icy region would not only be attended with peril to the ship, but would cause a waste of the time which was demanded by his other duties, and having nearly three thousand miles to sail to the next port (Bay of Islands), made up his mind to turn the head of the vessel northward.

He therefore had the officers and crew called aft, thanked them all for their exertions and good conduct during the trying scenes they had gone through, congratulated them on the success that had attended them, and informed them that he had determined to bear up and return north.

On the 22d of January, 1840, the Porpoise lost sight of the Peacock, and continued beating to the southwest. The weather was extremely cold; sea-water froze on being a few minutes in the bucket on deck. Some shrimps were caught. The water at three p. m. was much discolored; got a cast of the lead with two hundred fathoms: no bottom; found the current south by east, three-fourths of a mile per hour. Later they passed large icebergs, one of which had several dark horizontal veins, apparently of earth, through it; large quantities of floe and drift-ice to the southward; the sea very smooth. A report of high land was made this morning; indeed everything indicated the proximity of land. The number of seals, whales, penguins, shrimps, etc., had very much increased. The pure white pigeons were also seen in numbers.

Countless icebergs in sight; the sea quite smooth; not the slightest motion perceptible. At meridian they were in latitude $66^{\circ} 44'$ S., longitude $151^{\circ} 24'$ E., and close to the barrier, which appeared quite impenetrable, as far as the eye could reach from aloft, to the north-northwest and north-northeast, with numberless immense ice-islands entangled and enclosed

in it in all directions. The position they occupied seemed an inlet of elliptical shape, with an opening to the north. It was needless to count the many scattering islands of ice distinct from the vast chain; intermingled with field-ice, they studded the gulf like so many islands of various shapes and dimensions. At 2 hrs. 25 min. on the following day a sail was discovered on the lee-bow; kept off to communicate, supposing it to be the Vincennes or Peacock.

On the 30th, after experiencing a severe gale, they stood again to the southwest; at two A. M. they made the barrier of field-ice, extending from southeast to west, when it became necessary to haul more to the northwest; the weather becoming thick with a heavy fall of snow, at four o'clock, the wind increasing, compelled them to shorten sail; at 7 hrs. 30 min. the ice in fields was discovered close aboard, heading west; at this time hauled immediately on a wind to the northeast, and soon passed out of sight of the ice and out of danger; during the day blowing a gale of wind, and very heavy sea running, passed occasional ice-islands; at meridian, being clear of the barrier, the brig was hove to under storm-sails to await the clearing of the weather. In the afternoon the weather showed signs of clearing; the sun coming out again made sail to approach the barrier; no ice in sight; great numbers of black petrels about.

At four P. M. they discovered a ship ahead, and shortly after another was made, both standing to the northward; the brig hauled up to the northwest, intending to cut them off and speak them, supposing them to be the Vincennes and the Peacock; shortly afterwards they were seen to be strangers, being smaller ships; at 4 hrs. 30 min. the Porpoise hoisted her colors. Knowing that an English squadron under Captain Ross was expected in these seas, Lieutenant-Commandant Ringgold took them for his ships, and was, as he says, "preparing to cheer the discoverer of the North Magnetic Pole."

"Later in the day, being within a mile and a half, the strangers showed French colors; the leeward and sternmost displayed a broad pennant. They concluded now that they must be the French discovery ships under Captain D'Urville: desirous of speaking and exchanging the usual and customary compliments incidental to navy life he closed with the strangers, desiring to pass within hail under the flag-ship's

stern. While gaining fast, and being within musket-shot, his intentions too evident to excite a doubt, so far from any reciprocity being evinced, he saw with surprise sail making by boarding the main tack on board the flag-ship. Without a moment's delay he hauled down the colors and bore up on his course before the wind.

On the 14th of February Lieutenant-Commandant Ringgold, having passed a few degrees beyond his instructions, that is, having reached longitude 100° E., and latitude $64^{\circ} 15'$ S., now commenced his return, in order to examine those places in the barrier which he had been prevented from doing on his way west.

On the 16th and 17th they were employed in getting to the eastward, passing many worn and shattered bergs. On the evening of the latter day they had another exhibition of the aurora australis, extending from north-northwest to east; it was of a light straw color, but very indistinct; the luminous bank was at an elevation of 30° . The light in the northwest was most distinct, radiating from a nucleus above the horizon towards the zenith, where it formed a beautiful halo. It was not of long duration. Many ice-islands and bergs in sight; upwards of two hundred, nearly all of a tabular form—the sides of many of them beautifully excavated by the waves, presenting innumerable Gothic arches, extending often to a considerable distance into the body of the ice.

Their position on the 18th was in longitude $114^{\circ} 17'$ E., latitude $62^{\circ} 37'$ S. Flocks of blackbirds were very numerous, but not near enough to be taken.

On the 19th and 20th, proceeding to the eastward. On the 20th they had but few ice-islands in sight, although they were seventy miles farther south than on the 18th, when the largest number ever seen by them at one time was visible; having reached the longitude of 120° E., they again steered south, to make the barrier. The current was tried, but none found.

The 21st proved stormy, with strong breezes from the southeast, and much snow and rain, which covered the brig with ice. Field-ice was seen ahead when they again stood to the eastward, longitude being $121^{\circ} 30'$ E., latitude $65^{\circ} 15'$ S. On this night they experienced a heavy gale, during which the barometer fell to 27.50 in., where it remained during part of the 22d. The squalls were very severe,

accompanied with snow, sleet, hail, and heavy seas; they had now reached longitude 122° E., and latitude $64^{\circ} 9'$ S.

February 22d, being Washington's birthday, the colors were hoisted, and the crew received an extra allowance. Lieutenant-Commandant Ringgold took this occasion to express to them his satisfaction for the manner in which they had performed their duties during the present cruise, and that their conduct would be duly represented to the commander of the expedition, and the government.

On the 23d the weather was again thick, with snow and mist.

On the 24th they had reached longitude 126° E., and latitude $64^{\circ} 29'$ S. On this day they again sighted the barrier; when, having completed what he deemed a full execution of his instructions, Lieutenant-Commandant Ringgold determined to put the brig's head north, which was accordingly done.

Strong winds and gales continued for the next three days. On the 27th they again found themselves in east variation, in longitude 138° E., latitude $60^{\circ} 8'$ S. The white albatross had now again become common.

On the 29th of February they had a beautiful display of the aurora australis; the whole southern hemisphere was covered with arches of a beautiful straw color, from which streamers radiated, both upwards and downwards, of almost a lustrous white; numbers of concentric arches would occasionally show themselves, of a width of a few feet, uniting to form a complete canopy for a moment, and then vanish. The arches extended from east-southeast to west-northwest; the display continued for over two hours; the stars were seen above them. Previous to, and during its continuance, the thermometer indicated a change of four degrees, and the wind shifted to the southward.

On the 1st of March, in latitude 55° S., and longitude 140° E., they passed the last ice-island.

On the 5th of March the Lord Auckland Isles were descried. Immense numbers of albatrosses were about. The aurora was again seen in the southern hemisphere.

On the 7th they anchored in the harbor of Sarah's Bosom, in twelve fathoms water. During their brief stay here, all were actively employed wooding and watering, for which this harbor affords a fine opportunity.

On the 9th of March they had finished, and were prepared for sea, but the weather was threatening and caused them to delay. The magnetic dip was found to be $73^{\circ} 47' 30''$ S.

A whaler, under Portuguese colors, but commanded by an Englishman, arrived, and anchored in Lawrie's Cove, to await the coming of the whales! The night proved stormy; the wind at 10 hrs. 30 min. from the northeast, blowing very heavy in puffs. Towards noon it moderated; later they got under way, with a light breeze from the northwest, and stood to sea.

On the 12th no current was found; latitude $49^{\circ} 27'$ S., longitude $168^{\circ} 13'$ E. The weather experienced from this port to New Zealand was very similar to that in passing from Cape Horn to Valparaiso: northerly winds with mist and fog prevailing, with a heavy sea. On the 17th they fell in with the whale-ship Mary and Martha, of Plymouth, Coffin, master, who informed them that there were at least one hundred whale-ships cruising in the neighboring seas; of these several were seen. This will give some idea of the number of vessels employed, and how great a capital is engaged in this business.

On the 18th they had a gale from north-northwest, which lasted through the day, moderating at sunset. They were in latitude $43^{\circ} 2'$ S., longitude by chronometer, $175^{\circ} 24'$ E. The barometer sank to 29.30 in. A current was experienced setting northwest, in the direction of Cook's Straits.

On the 26th they reached and anchored in the river Kawa-Kawa, in the Bay of Islands, off the American consul's, about three miles above its mouth. Many vessels were passed lying at anchor off the town of Kororarika. Here they found the tender Flying-Fish; all well.

CHAPTER VIII.

WILKES' ANTARCTIC EXPEDITION—(*Continued*).

The Vincennes—Departure from Sydney—New Zealand—The Bay of Islands—Tongataboo—The Feejee Group—Rewa—Cannibalism at Somu-Somu—Death of Lieutenant Underwood and Midshipman Wilkes Henry—The Squadron parts Company—Passage of the Vincennes to the Island of Oahu—M'Kean's Island—Arrival at Oahu—Arrival of the Peacock and Porpoise at Oahu—Vatoo, or Turtle Island—Visiting the Hawaiian Islands—Departure from Oahu—Expedition up the Columbia River, Oregon—Nisqually—Loss of the Peacock—San Francisco and Manilla—Singapore—Table Bay.

HAVING replenished his stores of provisions, Lieutenant Wilkes took a final leave of his friends at Sydney. The Vincennes weighed anchor on the 19th of March, and bade adieu to these hospitable shores. The Peacock, not having completed her repairs, was left at Sydney for a few days, with orders to follow to Tongataboo.

At daylight on the 30th he made Cape Brett, and after groping his way through the dark, into the Bay of Islands, anchored in the Kawa-Kawa river, opposite the residence of Mr. Clendon, the American consul. Here the commander had the satisfaction to find the Porpoise and Flying-Fish, and received the reports of their cruises.

Having completed such repairs as were necessary, the Vincennes, with the Porpoise and Flying-Fish in company, sailed from the Bay of Islands on the 6th of April, 1840, for Tongataboo.

The islands of Tongataboo and Eooa are the two southern islands of the Hapai Group (the Friendly Isles of Cook); the former is a low, level island, while that of Eooa is high. The highest part of Tongataboo is only sixty feet above the level of the sea, while that of Eooa rises about six hundred feet; the strait between them is eight miles wide. Tonga is extremely fruitful, and covered with foliage, while that of Eooa is rocky and barren.

At daylight on the 4th of May, 1840, the squadron got under way from the harbor of Nukualofa, and passed with

safety through the reefs. At meridian, Honga Tonga and Honga Hapai were to the north; these are both high, and are distant from Tonga twenty-seven miles.

At 6 A. M. Lieutenant Wilkes made signal to the Porpoise to part company.

On the 7th they found themselves in the midst of a number of beautiful islands, viz.: Goro, Vanua-levu, and Somu-somu on the right; Nairai, Ambatiki, and Matuku on the left; whilst Ovolau, Wakaia, and Mokungai were in front; they were all girt by white encircling reefs.

Each island had its own peculiar beauty, but the eye as well as mind felt more satisfaction in resting upon Ovolau, which had more of the appearance of civilization about it than the others; it is also the highest, most broken, and most picturesque.

The remarkable peculiarity of these coral harbors is, that in gaining them, it is but an instant from the time the sea is left until security is found equal to that of an artificial dock; this is particularly the case with the harbor of Levuka. The shore was lined with natives, watching the ships' progress with their usual curiosity; and it was amusing to hear the shouts of applause that emanated from the crowds on shore, when they witnessed the men, dressed all in white, running up the rigging to furl the sails.

The Peacock left Levuka on the 15th of May, and reached Rewa at noon the next day, for the purpose of visiting that town and inducing the king of Rewa to sign the Feejee regulations, and also to carry on the surveys in that quarter.

The harbor of Rewa is formed by two small islands, called Nukalou and Mukalou, with their attached coral reefs, and has three passages into it. The two southern ones are safe, though narrow, but the northern one is much obstructed with coral lumps. The port is a secure one, and the anchorage, which is off the island of Nukalou, is about six miles from the town of Rewa, which is situated on a low piece of land, which the river, passing on each side of it, has formed into an island.

The town of Rewa, though in a low situation, has a picturesque though singular appearance. It extends about a mile along the river, and contains from five to six hundred houses of all sizes, from the lofty mbures (temples) with their pointed roofs, and the barn-like edifices of the chiefs, to the

rickety shanties of the kai-sis, and the diminutive yam-houses, perched on four posts, to protect the yams from the depredations of the rats. It is everywhere intersected by narrow lanes, closely shut in with high reed fences.

On the 7th of June the Vincennes sailed from Vuna Island.

Somu-somu, although one of the chief towns of Feejee, acknowledges a sort of subjection to Ambau. The town of Somu-somu contains about two hundred houses, which are more straggling than any yet seen. It is partly built below a bluff, which affords a very safe retreat and strong defence to its inhabitants, and is divided, therefore, into a lower and upper town. The old mbure near the missionaries' house is nearly gone to decay. Here was found the only carved image that could be seen in the group; it was a small figure cut out of solid wood, and the missionaries did not seem to think that it was regarded by the people with any reverence. The priest appears to have taken up his abode with the old king, and was apparently held in great reverence.

The town is situated on the northwest side of the island of Vuna, which is separated from the island of Vanua-levu, or the large land, by a strait five miles wide in its narrowest part, which Lieutenant Wilkes called the Strait of Somu-somu. The island of Vuna rises gradually to a central ridge, the height of which, by several measurements, was found to be two thousand and fifty-two feet. The summit is generally covered with clouds. From its gradual rise, and its surface being smoother, it is susceptible of a much higher state of cultivation than the other islands; the soil is a rich reddish loam, and it appears to be considered as the most fruitful of the islands. At the same time, its inhabitants are acknowledged by all to be the most savage. Cannibalism prevails here to a greater extent than anywhere else.

The length of Vuna is twenty-five miles, and its breadth five miles.

Lieutenant Wilkes dined, and spent the afternoon with the missionaries and their ladies, and heard a recital of some of the trials they have been subjected to.

On the 11th of February, 1840, one of their servants informed them that the king had sent for two dead men from Lauthala, a town or koro not far from Somu-somu. On inquiring the reason, he knew of none but that the king was angry; this was sufficient to know, and in some degree pre-

pared them for what they shortly afterwards had to witness. They now found that their servant was only partly informed, for, instead of two men, they soon observed eleven brought in, and knew that a feast was to take place. The missionaries, Messrs. Hunt and Lythe, went to the old king, to urge him to desist from so barbarous and horrid a repast, and warned him that the time would come when he would be punished for it. The king referred them to his son, but the savage propensities of the latter rendered it impossible to turn him from his barbarous purposes.

On the day of the feast the shutters of their houses were closed, in order to keep out the disgusting smell that would ensue, but Mr. Hunt took his station just within his fence, and witnessed the whole that followed. The victims were dragged along the ground with ropes around their necks by these merciless cannibals, and laid, as a present to the king, in the front of the missionaries' house, which is directly opposite the king's square, or public place of the town. The cause of the massacre was, that the people of Lauthala had killed a man belonging to the king's koro, who was doing some business for the king; and, notwithstanding the people of Lauthala are related to the king, it was considered an unpardonable offence, and an order was given to attack their town. The party that went for this purpose came upon the unsuspecting village when they were neither prepared for defence nor flight, or, as they described it to Mr. Hunt, "at the time the cock crows, they open their eyes and raise their heads from sleep, they rushed in upon them, and clubbed them to death," without any regard to rank, age, or sex. All shared the same fate, whether innocent or guilty. A large number were eaten on the spot. No report makes this less than thirty, but others speak of as many as three hundred. Of these it is not our intention to speak, but only of what was done with the eleven presented to the king and spirit.

The utmost order was preserved on this occasion, as at their other feasts, the people approaching the residence of the king with every mark of respect and reverence, at the beat of the drum. When human bodies are to be shared, the king himself makes a speech, as he did on this occasion. In it he presented the dead to his son, and intimated that the gods of Feejee should be propitiated, that they might have rain, etc. The son then rose and publicly accepted the gift,

after which the herald pronounced aloud the names of the chiefs who were to have the bodies. The different chiefs take the bodies allotted to them away to their mbures, there to be devoured.

The chief of Lauthala was given to their principal god, whose temple is near the missionaries' house. He was cut up and cooked two or three yards from their fence, and Mr. Hunt stood in his yard and saw the operation. He was much struck with the skill and despatch with which these practised cannibals performed their work. While it was going on, the old priest was sitting in the door of his temple giving orders, and anxiously looking for his share. Some of those who joined in the feast acknowledged that the people of Lauthala were their relations, and he fully believes that they cooked and ate them because they were commanded to do so.

After all the parts but the head had been consumed, and the feast was ended, the king's son knocked at the missionaries' door (which was opened by Mr. Hunt), and demanded why their windows were closed? Mr. Hunt told him to keep out the sight as well as the smell of the bodies that were cooking. The savage instantly rejoined, in the presence of the missionaries' wives, that if it happened again, he would knock them in the head and eat them.

The Porpoise and the Vincennes next made surveys of the Espem group, and arrived off Laxemba on the 15th of June. A few days later the great Argo Reef was explored, where the brig Argo and another vessel had been lost.

At Lakemba there are about fifty resident Christians, nearly all of whom are Tongese, of whom about one-third of the population is composed; and they have literally taken possession of the island, for they never work, but subsist on the labor of the Feejee population, who hold them in much awe. The difference between the two races was as striking here as at Ovolau.

Lakemba is the largest island in the eastern group. It is five miles in diameter; its shape is nearly round, with an extensive encircling reef.

The people of this island seemed to be far from healthy; pulmonary diseases were common and often fatal, and an unsightly scrofulous affection appeared to be quite prevalent.

This island is the principal location of the Levukians, the first settlers of Ambau. They live in a village which is

denominated Levuka, and have the character at Lakemba of being a wandering, faithless tribe, addicted occasionally to piracy. This is not considered the case elsewhere, for the Feejee men in general look upon them as a useful class, and through them they carry on the trade between the different islands.

Lakemba was found, like the rest of this group, to be of volcanic formation. The soil is similar to that of Vanua, composed of a dark red loam. The island in point of fertility will compare with any of the others, and exceeds all those of the southeast in size and productiveness. It has rich valleys, or rather ravines, gradually rising and contracting until they reach the hills. Extensive groves of cocoanuts cover its shores and low lands, and add much to its beauty.

The Porpoise proceeded to the islands of Naiau and Tabutha, both north of Lakemba.

The islands of Aro, Chichia, Mango, Vekai, Katafanga, and the reef of Malevuvu, as well as the other exploring islands, were then visited and surveyed. They are all small, and lie to the north of Tabutha.

The Peacock and the Vincennes also visited and surveyed some of these islands.

On the 17th, in company with the Porpoise and boats, the Vincennes passed over to Yendua Island; after finishing the survey of it, she stood over for Round Island, the most northern of the Asaua or Western Group.

Lieutenant Wilkes continued his surveys of the Asaua Group, consisting of the islands of Ya-asaua, Androna, Yangata, Naviti, Eld, Fox, Agate, Sinclair, including Malolo and Underwood Group. These islands, excepting the latter group, are all high, and broken into many volcanic peaks, forming many picturesque islands. They were inhabited by a very wild set, who were even looked upon with great dread by the rest of the group, from the frequent excursions they make upon the larger islands.

Linthicum Island, one of the Underwood Group, Lieutenant Wilkes occupied as a principal and last station, on the 24th, towards five o'clock in the afternoon.

While he was congratulating himself that he had now finished the survey, it was reported to him that the three boats were in sight, coming down before the breeze. So unusual an occurrence at once made him suspect that some accident had

occurred; and on the first sight he got of them he found that their colors were half-mast and Union down. He learned that a horrible massacre had but a short hour before taken place, and saw the mutilated and bleeding bodies of Lieutenant Joseph A. Underwood and Midshipman Wilkes Henry.

The boats were taken in tow, and as the night closed in they anchored in its eastern Bay of Malolo.

On the 22d of July the first cutter of the Vincennes, Lieutenant Alden and Midshipman Henry, and the Leopard, Lieutenant Underwood, left the station at Eld Island, and proceeded along the right side of Waia, for the purpose of surveying the small islands lying north of Malolo. This done, they had instructions to join the tender, or Porpoise, on the western side of that island, and survey such islands as they might fall in with on the way. After passing Waia, the boats anchored for the night under one of the small islands.

The next day they were employed in the survey of the small islands, and in the evening anchored in the bay on the east side of Malolo, formed by it and Malolo-lai-lai, or Little Malolo.

On reaching this place, Lieutenant Alden, being desirous of ascertaining if the Porpoise was at the anchorage on the west side, directed Lieutenant Underwood to land near the south end of Malolo, and to ascend a small eminence to get a view of that anchorage. Lieutenant Alden, it appears, cautioned Lieutenant Underwood to go well-armed, and to be on his guard with the natives, as on his former visit, about six weeks before, he had been led to doubt their friendly disposition, and, in consequence, had avoided having any communication with them. He also directed Lieutenant Underwood to return before sunset.

Lieutenant Underwood landed, and went up the hill with one of his men. After a few minutes, Lieutenant Alden observed some suspicious movements among the natives near the point, and, in consequence, hoisted a signal of recall. Lieutenant Underwood was soon seen returning to the boat with his man and a native. Before leaving the beach he had some talk with the natives.

On joining Lieutenant Alden, he reported that there was no vessel in sight, and mentioned that on his way up the hill he suddenly came upon a native carrying an armful of clubs, who, the moment he perceived him, threw down his load and

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attempted flight, but Lieutenant Underwood detained and made him go before them to the boat. When they reached the beach a party of natives joined, and appeared to him much disconcerted at finding the lad a prisoner and without arms.

They passed the night at anchor in this bay, and on the morning of the 24th discovered the tender at anchor to the eastward. At nine o'clock Lieutenant Emmons joined them in the Peacock's first cutter, having passed the night at one of the small sand-islands in the neighborhood. Lieutenant Emmons found them waiting breakfast for him. They anticipated that he had some more provisions for them, as he had recently parted with the tender, and hoped to procure some yams, pigs, etc., from him, or from the tender herself, which would in all probability reach Malolo during the day.

When Lieutenant Emmons arrived, several of the natives, some of whom were armed, were on the beach where the boats' crews had cooked their breakfast.

Many inducements were offered to them for pigs, yams, etc., with very little success, each offering some excuse, and urging the necessity of the boats going to their town for such things.

It appears that Lieutenant Underwood now volunteered to go to the town for provisions. He, in consequence, shoved off, leaving the other boat to follow him as soon as the tide would allow it to cross the reef between the islands. Lieutenant Emmons then pushed his boat for the shore, and landed with three armed men on Malolo-lai-lai, in order to obtain some angles from the top of a hill. On his approaching the beach the natives waded off to his boat, but he ordered them off, and directed the officer with him, Midshipman Clark, to keep his boat afloat, and not suffer them to approach her during his absence.

On landing they found no more than two pigs, tied to a tree, for sale, instead of the four they had been promised as presents. These the natives declined selling until the chief, who was out upon the reef fishing, should return.

Lieutenant Alden entertained some uneasiness at the number of natives that had crowded around the Leopard, and proceeded to join her, but was detained near the reef about twenty minutes before the tide would allow the boat to pass over, the first cutter drawing more water than the Leopard.

On entering the bay he found the Leopard at anchor about 2,000 feet from the shore, in just sufficient water to enable his boat to get alongside. He was informed by the boat's crew that Lieutenant Underwood had gone on shore, leaving a hostage in the Leopard, whom Lieutenant Alden immediately took into his own boat. Lieutenant Underwood was accompanied to the shore by J. Clark, armed with a rifle and sheath-knife; J. Dunnock and J. M'Kean, armed with cutlasses; William Leicester, who had the trade-box, unarmed; John Sac, interpreter, unarmed; Jerome Davis and Robert Furman, unarmed. The rest of his men remained in the boat, armed with cutlasses and two rifles.

After this, Midshipman Henry asked, and Lieutenant Alden gave him permission to land in the canoe and come off with Lieutenant Underwood. A few moments after a small canoe came alongside Lieutenant Alden's boat and exchanged some words with the hostage, who displayed a little anxiety to return with them to the shore. As the canoe shoved off he attempted to leave the boat, when Lieutenant Alden took him by the arm and directed him to sit down, giving him to understand that he must keep quiet. Lieutenant Emmons now joined, and the Leopard was ordered to drop in as near to the party on shore as possible. The tide had by this time risen sufficiently to allow her to go most of the way on the reef.

While Lieutenant Alden was relating the circumstances of the hostage's desire to escape to Lieutenant Emmons from the starboard side of the boat, the hostage jumped overboard from the larboard quarter, and made for the shore in two and a half feet of water, looking over his shoulder so as to dodge at the flash if fired at.

Lieutenant Underwood, M'Kean, and Midshipman Clark were standing near the beach, when they saw the chief escape from the boat and heard the report of the musket. The old chief, who was standing near, immediately cried out that his son was killed, and ordered the natives to make fight. Upon this two of them seized upon Clark's rifle, and tried to take it from him. One of these he stabbed in the breast with his sheath-knife, the other Mr. Underwood struck on the head with the butt-end of his pistol, upon which both relinquished their hold. Lieutenant Underwood then ordered the men to keep close together, and they endeavored to make their way to the boat facing the natives. Lieutenant Underwood also

called upon Midshipman Henry to assist in covering the retreat of the men to the boats, to which Mr. Henry replied that he had just received a blow from the club of a native, and would first have a crack at him. He then pursued the native a few steps, and cut him down with his bowie-knife pistol, and had again reached the water's edge, when he was struck with a short club on the back of the head, just as he fired his pistol and shot a native. The blow stunned him, and he fell with his face in the water, when he was instantly surrounded by the natives, who stripped him. The natives now rushed out from the mangrove bushes in great numbers, some of them endeavoring to get between Lieutenant Underwood and the water, while others crowded upon his party, throwing their short-handled clubs and using their spears. Lieutenant Underwood, having received a spear-wound, fired, and ordered the men to do the same; and after he had fired his second pistol, was knocked down by the blow of a club. Clark at the same time was struck, and had no further recollection.

On seeing the attack Lieutenants Emmons and Alden pushed for the shore with both boats. The former had already started to endeavor to retake the hostage. The boats commenced firing as they sailed in on some natives who appeared to be wading out to meet them. As soon as the boats took the bottom, all jumped out except two boat-keepers, and waded in, occasionally firing at the natives, who now retreated, carrying off their dead and wounded, and soon disappeared among the mangrove bushes.

Before reaching the beach J. G. Clark was met, badly wounded, and was taken at once to the boats. On the beach lay Lieutenant Underwood partly stripped, and Midshipman Henry quite naked, with a native close by the latter badly wounded, who was at once despatched.

The party, picking up the bodies, bore them to the boats. On the first inspection some faint hopes were entertained that Midshipman Henry was not dead; but a second examination dissipated this idea.

The boats now hauled off, and made sail to join the tender, where they had seen her in the morning at anchor.

Every attention was paid to the wounded and dead by the officers that affection and regard could dictate.

The natives afterward received an exemplary punishment at the hands of Lieutenant Wilkes and his men.

The reunion of the several vessels of the squadron did not give rise to the feeling of pleasure which had attended such meetings on other occasions. A deep gloom on the contrary was spread over the minds of all by the melancholy fate of their comrades, who had been the victims of the butchery at Malolo. In honor of their memories a funeral sermon was preached on the 10th of August by the chaplain, before the assembled officers and crews. It was likewise voted at a meeting of the officers, that a monument be erected at Mount Auburn to the memory of Lieutenant J. A. Underwood and Midshipman Wilkes Henry.

After their departure from the Feejee Group, signal was made to the Porpoise to part company, and the tender was despatched to run along the sea-reef as far as Round Island, before shaping her course for Oahu in the Sandwich Islands.

All the necessary arrangements with Captain Hudson being complete by this time Lieutenant Wilkes determined that the vessels should part company. By pursuing separate tracks there would be a better opportunity of searching for some doubtful islands, and of obtaining information in relation to the currents and winds. The vessels therefore parted company on the evening of the 14th of August.

On the 19th the Vincennes made an island in the neighborhood of the position assigned to Kemins' or Gardner's Island. This is a low coral island, having a shallow lagoon in the centre, into which there is no navigable passage, but the reef on the western side is so low that the tide can flow into the lagoon.

At ten on the morning of the 19th breakers were discovered from the mast-head, and by noon a small island was seen, to which was given the name of M'Kean's Island. In the afternoon boats were despatched to survey it.

M'Kean's Island is composed of coral sand and blocks, and is three-fourths of a mile long by half a mile wide. It rises twenty-five feet above the level of the sea, and has upon it no vegetation except a scanty growth of coarse grass. It lies about north-northeast sixty miles from that of Kemins.

On the 23d of September the Vincennes made the island of Oahu, and by four o'clock we saw the town of Honolulu, which is very conspicuous from the sea, and has more the appearance of a civilized land, with its churches and spires, than any other island in Polynesia.

On the morning of the 24th she came to anchor in the roads, and found the tender had arrived a few days before us, all well.

The appearance of Oahu is by no means inviting; it has a greater resemblance to the desert coast of Peru than any other of the Polynesian islands we had visited, and has as little appearance of cultivation. The country would be termed at first sight barren and rocky. The land in places is very much broken, and rises into high ridges, here and there divided by deep and narrow ravines, with little vegetation, except on the mountain ranges.

On landing a great uproar prevailed, and groups presented themselves to view, so motley that it would be difficult to describe their dress or appearance. There are, indeed, few places where so great a diversity in dress and language exists as at Honolulu. The majority were in well-worn European clothing, put on in the most fanciful manner; but upon the whole he should say that the crowd were scantily covered, some being half dressed, many shirtless, none fully clothed, and numbers of them with nothing on but the maro. He had been led to expect a greater appearance of civilization. The women were all clad in long loose garments, like bathing-dresses, and many of them were sporting in the water as if it had been their native element. Some of these natives wore the simple tapa, thrown over their shoulders, which gave them a much more respectable appearance than those who were clothed in cast-off garments.

Everything is earth-color, with the exception of a few green blinds. The streets, if so they may be called, have no regularity as to width, and are ankle-deep in light dust and sand. Little pains are taken to keep them clean from offal; and, in some places, offensive sink-holes strike the senses, in which are seen wallowing some old and corpulent hogs.

On the 30th of September the Peacock reached Oahu, all well. On parting company with the Vincennes Captain Hudson passed over the position assigned to a reef, by Captain Swain, in longitude $176^{\circ} 56' W.$, latitude $9^{\circ} 55' S.$, without seeing anything of it, and continuing to the northward, crossed the line on the 27th of August.

The Porpoise arrived at Oahu on the 8th of October, all well. She had visited the Samoan Group and Vatoa, or Turtle Island, which was found to be three miles long by one

and a quarter mile wide. The reef extends all around the island, and is from one and a half to two miles wide. The island contains about fifty inhabitants, who have native missionaries, and are Christians.

They met with a warm reception at the Hawaiian Islands. The governor, Kekuanaoa, kindly placed at his disposal the large stone house belonging to Kekauluohi, in the square where the tomb in which the royal family are interred is situated. The tomb was at that time undergoing some repairs. The state coffins, which are richly ornamented with scarlet and gold cloth, and in two of which the bodies of the late king, Liho-liho, and his wife were brought from England, in the frigate *Blonde*, were deposited in the house Lieutenant Wilkes was to occupy. The governor had them at once removed to the tomb, and in two days he was comfortably established, and engaged in putting up his instruments, and getting ready to carry on their shore duties.

From October to the 5th of March, 1841, Lieutenant Wilkes and his squadron were anchored at the Hawaiian Island, and this time was spent in making observations. The volcano Mauna Loa and eruption of one of the craters were observed. From there the *Vincennes* set sail for the island of Mani.

On the 5th of April, 1841, Lieutenant Wilkes had completed his repairs, and made arrangements for the transportation of his stores to the Columbia River. Towards sunset he took leave of his friends, and the same night they made sail, and steered to the westward, in order to pass between the islands of Oahu and Kauai.

On the 28th of April he made Cape Disappointment, which he soon came up with. A heavy sea, caused by the strong winds that had prevailed for several days, was running. He, notwithstanding, stood for the bar of the Columbia River, after making every preparation to cross it; but on approaching nearer he found breakers extending from Cape Disappointment to Point Adams, in one unbroken line.

All who have seen the bar of the Columbia have spoken of the wildness of the scene, and the incessant roar of the waters, representing it as one of the most fearful sights that can possibly meet the eye of the sailor. The difficulty of its channel, the distance of the leading sailing marks, their uncertainty to one unacquainted with them, the want of knowledge of the strength and direction of the currents, with the

necessity of approaching close to unseen dangers, the transition from clear to turbid water, all cause doubt and mistrust.

During the night Lieutenant Wilkes took into consideration the loss of time that must arise from awaiting an opportunity to cross the bar, and after due reflection came to the conclusion that it would be better to proceed at once to the Straits of Juan de Fuca, and there begin work on this coast.

The weather was very thick, and the wind south-southwest. At ten o'clock the Porpoise was close under his lee-quarter.

On the morning of the 1st of May he found himself well into the straits; and as he proposed to defer the survey of this part of them until his return, he hastened to reach Port Discovery, where he anchored on the 2d of May; just forty-nine years after Vancouver had visited the same harbor.

The Straits of Juan de Fuca are bold, and anchorage is to be found in but few places. He could not obtain bottom in some places with sixty fathoms of line, even within a boat's length of the shore.

The south side is composed of perpendicular sandy cliffs, that run back into high and rugged peaks, and is covered with a forest of various species of pines, that rises almost to the highest points of the range of mountains. The highest points themselves are covered with snow; and among them Mount Olympus was conspicuous, rising to an altitude of eight thousand one hundred and thirty-eight feet.

The north shore is rocky, and composed, as far as we could examine it, of conglomerate, and in some few places of a reddish granite.

In the morning the Vincennes was boarded by a large canoe, with Indians who spoke a few words of English. The principal man of the party was dressed in a coarse coat of red cloth, with the Hudson Bay Company's buttons, and corduroy trowsers. He had neither shirt, shoes, nor hat, although the rain was falling fast. The others were habited in blankets or skins, and wore conical grass hats, resembling in shape those of the Chinese.

On the 6th of May, finding that the messenger whom he had despatched to Fort Nisqually did not return, he determined to proceed towards that place without further delay. He therefore got under way, entered Admiralty Inlet, and soon anchored in Port Townsend, on its northern side.

On the 11th of May they again weighed their anchors, and sailed through the narrows.

Twelve miles more brought them to the anchorage off Nisqually, where both vessels dropped their anchors about eight o'clock.

Nothing can exceed the beauty of these waters, and their safety; and not a shoal exists within the Straits of Juan de Fuca, Admiralty Inlet, Puget Sound, or Hood's Canal, that can in any way interrupt their navigation by a seventy-four gun ship.

The shore rises abruptly to a height of about two hundred feet, and on the top of the ascent is an extended plain, covered with pine, oak, and ash. Fort Nisqually, with its out-buildings and enclosure, stands back about half a mile from the edge of the table-land.

The Porpoise, with two of the Vincennes' boats, took up the survey of Admiralty Inlet; the launch, first cutter, and two boats of the Vincennes, the survey of Hood's Canal. The land parties intended to explore the interior were allowed eighty days for the explorations.

Drayton and Waldron of the Vincennes, Lieutenant Wilkes, and two servants, proceeded to the Columbia to visit Astoria, then Fort Vancouver and the Willamette settlement, and to proceed up the river as far as Wallawalla. From Astoria they proposed to send parties from the Peacock into the interior, and to set on foot the survey of the Columbia River by means of her boats.

Fort Nisqually is constructed of pickets, enclosing a space about two hundred feet square, with four corner bastions. Within this enclosure are the agent's stores and about half a dozen houses, built of logs and roofed with bark. This fort was considered quite large when it was first established, but since it has become an agricultural post as well as a trading one, it is found to be too small. Its locality is also ill chosen, on account of the difficulty of obtaining water, which has to be brought from a distance of nearly a mile.

Having seen the parties all off, or ready to start, the party set out. It was a strange cavalcade, for most of them were but sorry horsemen, and they had every variety of accoutrements, from the saddle and bridle to the bare back and halter. They were eight in number: Messrs. Drayton, Waldron, and Lieutenant Wilkes, two servants, two Indians, and a Cana-

dian guide, with four pack-horses. All the horses and the guide were kindly furnished by the gentlemen at the fort to carry us as far as Cowlitz Farms, about sixty miles distant, where we intended taking canoes.

On the second day they arrived at the Cowlitz Farms, on the river of that name, which takes its rise in the Cascade Range, near Mount Rainier, and has many short turns in it. Its banks, until it approaches the Columbia, are tolerably high. It is not navigable for barges more than three months in the year.

The Columbia, opposite to Astoria, is four miles wide, but in the middle of the river is an extensive sand-bar with only a few feet of water on it, and at extreme low tides it is bare; the channel is very narrow on each side and difficult to navigate.

The country lying north of the Columbia, between the Cowlitz and Cape Disappointment, is generally rough and rugged, with numerous streams of water, and in many places a rich soil; it is extremely well timbered, and is capable, when cleared, of growing grain and other agricultural produce.

The flood is a very grand sight from the banks of the river at Vancouver, as it passes swiftly by, bearing along the gigantic forest trees, whose immense trunks appear as mere chips. They frequently lodge for a time, in which case others are speedily caught by them, which, obstructing the flow of the water, form rapids, until by a sudden rush the whole is borne off to the ocean, and in time lodged by the currents on some remote and savage island, to supply the natives with canoes.

It would be difficult to give the reader an idea of the anxieties that beset Lieutenant Wilkes when he joined the Vincennes once more on the 16th June, 1841. Day after day had passed in the anxious expectation of receiving news of the Peacock and Flying-Fish, until a conviction became general, with both officers and crew, that some serious accident had occurred to one or both of them among the dangerous coral reefs and islands they had been sent to explore. They were now three months later than the time appointed for their arrival at the Columbia River.

On the 26th a messenger arrived with letters from Nisqually, informing him of the loss of the Peacock on the bar

of the Columbia, but that all hands were saved. This news, although bad, was a great relief to him; for he had feared not only the loss of the vessels, but had serious apprehensions for the lives of the persons on board.

Captain Hudson had attempted to enter the Columbia with the Peacock at a time which in his judgment was propitious to incur the dangers of the bar. Soon the ship struck a shoal and with every sea lifted and struck heavily.

The lighter spars were now sent down, and the pumps were rigged; every exertion was made to save the masts and lower yards, by which the launch might be hoisted out as soon as the sea would permit it.

Captain Hudson, finding that the ship was leaking badly, ordered the watches in gangs to the pumps, which were thenceforward kept in action until the vessel was abandoned. Every possible exertion was made to bring the ship's head to the sea, but without much effect.

At last, by heaving the shot overboard, and starting the water, the ship was so much lightened that, by means of the larboard anchor, which had been cast free of the ship, she was hove round with her head to the sea. At low water, which occurred about dark, there was only nine feet depth of water alongside. At 8h. 45m. the chain-cable parted, the ship was again thrown broadside to the sea, and began again to strike heavily.

At 11h. 30m. it was high water; at 1 P. M. the sea was rapidly increasing; and at 2 A. M. the breakers were making a continued breach over the vessel, by which the bulwarks were stove in and the spar-deck flooded. The water was knee-deep on the gun-deck, and the shot-lockers were buried in it. The night passed heavily with little hope of the ship's holding together till morning. At last the day dawned, and with the coming light, and at the extreme fall of the tide, the sea providentially abated.

At six o'clock in the morning a large canoe boarded the vessel manned by a crew of Chinook Indians, and having on board old Ramsey, the pilot, with a colored boy belonging to the Vincennes of the name of John Dean. The latter, who had been left with Mr. Waldron at Astoria, had persuaded Ramsey and the Indians to come off for the purpose of rendering assistance. The launch and the boats were also hoisted out, a few provisions put in them, and a part of the men and

officers embarked, with as little delay as possible and just as they stood, for fear of overloading the boats and thus causing the loss of all. In these Lieutenant Perry with Purser Spieden, the sick, the naturalists, and the charts, books and ship's papers, were sent off to be landed in Baker's Bay. The boats landed all in safety; and succeeded in making a second trip, in which all who had remained on board were taken to the shore except Captain Hudson, Lieutenant Walker, the boatswain, the carpenter and about thirty men.

Towards noon the breakers again increased; and the sea was making a breach in all directions over the ship, which was filling fast, the water having risen above the level of the berth-deck. The masts were cut away, and the vessel lay a complete wreck with nothing standing but the stump of the mizzen-mast.

Lieutenant Emmons, who had charge of the boats, was, during this time, using every possible exertion to make a third trip, but without success; and the crews of the boats were the anxious witnesses of the condition of the ship, without being able to relieve those on board from their perilous situation. They persevered, however, in their fruitless and laborious endeavors, until one of the boats, in charge of Mr. Lewis, the gunner, was thrown end over end, and with her crew engulfed. Lieutenant De Haven was fortunately close at hand, and succeeded in saving those on board; all of whom were injured, and one of them severely by the breaking of his hip-bone.

By three o'clock Lieutenant Emmons, with the boats, was again approaching the ship; but the sea was still too rough to venture near her, and it was not till five o'clock that he succeeded in getting alongside, when the remaining men were distributed among the boats and embarked in good order, Captain Hudson being the last to leave the ship.

The Peacock and Flying-Fish had started on the 2d of December, 1840, from Oahu and had visited Jarvis, Duke of York, Duke of Clarence, Bowditch, Swain's Island, Opolu, Ellices Island, Kingsmill Island, and arrived at the bar of the Columbia River on the 17th of July, after having touched at the Sandwich Islands.

On the 28th of October, 1841, all exploring parties had returned to San Francisco, and preparations were made to sail for Manilla, which was reached on the 13th of January, 1842

After visiting Santa Anna on the Pasig, the mountains of Maijaijai and the volcano Ae Taal, as well as the hot springs at Bannos, the expedition sailed south for the Straits of Mindoro.

On the evening of the 21st of January the Vincennes, with the tender in company, left the bay of Manilla.

On the 22d they passed the entrance of the Straits of San Bernadino. It would have been the most direct route to follow these straits until they had passed Mindoro. Lieutenant Wilkes' object, however, was to examine the ground for the benefit of others, and the Apo Shoal, which lies about mid-channel between Palawan and Mindoro, claimed his first attention.

Calavite Peak is the north point of Mindoro. He made it two thousand feet high. This peak is of the shape of a dome, and appears remarkably regular when seen from its western side. Mindoro is a beautiful island, and is evidently volcanic; it appears as if thrown up in confused masses.

The highest peak of the island by triangulation was found to be three thousand one hundred and twenty-six feet.

From there Lieutenant Ringgold visited the Sooloo Islands, Necker Island, and, after calling at the Sandwich Islands, arrived at Singapore on the 19th of January, 1842, which they left on the 26th of February, and anchored at Table Bay, Cape of Good Hope, on the 13th of April. After calling at St. Helena, and passing the magnetic equator on May 9th, the Vincennes with Lieutenant Wilkes on board arrived off Sandy Hook on the 10th of June, 1842.

The Porpoise and Oregon had, in the meantime, proceeded to Rio Janeiro, where they executed their instructions, and having obtained the necessary supplies sailed for the United States. After leaving the equator their route differed but little from that pursued by the Vincennes. They arrived at New York on the 30th of June, 1842.

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